

INDIVIDUATION, STRESS AND PROBLEM-SOLVING ABILITIES AND SKILLS  
OF COLLEGE STUDENTS

BY

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## TABLE OF CONTENTS

ACKNOWLEDGEMENT . . . . .	ii
ABSTRACT . . . . .	vi
CHAPTERS	
I      INTRODUCTION . . . . .	1
Statement of the Problem . . . . .	1
Need for the Study . . . . .	4
Purpose and Hypotheses of the Study . . . . .	10
Limitations of the Study . . . . .	12
II     LITERATURE REVIEW . . . . .	15
The Individuation Construct . . . . .	15
Theoretical Foundations of the Family Systems Definition of Individuation . . . . .	16
Individuation, Health and Coping . . . . .	22
Individuation as Measured by the Personal Authority in the Family System Questionnaire . . . . .	24
Stress . . . . .	30
Concept of Psychological Stress . . . . .	30
Stress, Personality Variables and Coping . . . . .	32
Measuring Stress . . . . .	35
Social Problem-Solving . . . . .	37
Definition of Social Problem-Solving . . . . .	38
The Problem-Solving Inventory (PSI) . . . . .	41
Relationship Between Social Problem-Solving Skills and Individuation Factors . . . . .	42
Problem-solving as a Means of Coping with Stress . . . . .	45
Problem-Solving Training: Step Three of the Prescriptive Problem-Solving Model . . . . .	48
Other Factors That May Affect the Outcome of this Study . . . . .	53
Design of the Study . . . . .	57
Independent and Dependent Variables for Phase I of the Study . . . . .	57

Independent and dependent variables for Phase II of the study . . . . .	57
Summary . . . . .	58
<b>III METHODOLOGY . . . . .</b>	<b>61</b>
Operational Definitions of Variables . . . . .	61
Hypotheses and Research Questions . . . . .	65
Subjects . . . . .	67
Instruments for Phase I of the Study . . . . .	69
Instruments for Phase II of the Study . . . . .	77
Procedure . . . . .	79
Data Collection for Phase I . . . . .	79
Stratified Sampling Procedure and Group Assignment for Phase II Data Collection . . . . .	81
Data Collection for Phase II . . . . .	83
Procedure for Training Raters to Score Specificity of Problem Solutions . . .	86
<b>IV RESULTS . . . . .</b>	<b>89</b>
Results from Research Question 1 . . . . .	89
Results from the Analyses to Test the Four Hypotheses of the Study and Research Questions 2 and 3 . . . . .	93
Additional Analyses of Interest to the Study .	100
<b>V DISCUSSION . . . . .</b>	<b>104</b>
Summary of Results . . . . .	104
Interpretation of the Results . . . . .	108
Limitations of the Study . . . . .	117
Suggestions for Future Research . . . . .	120
Conclusions . . . . .	122
<b>APPENDICES</b>	
A PERSONAL AUTHORITY IN THE FAMILY SYSTEM QUESTIONNAIRE-VERSION C (INTERGENERATIONAL INDIVIDUATION AND TRIANGULATION SCALES .	127
B PSYCHOLOGICAL DISTRESS INVENTORY-STRESS SCALE . . . . .	128
C THE PROBLEM-SOLVING INVENTORY . . . . .	130

D	SOCIAL PROBLEM-SOLVING TASK FORM . . . . .	130
E	DEMOGRAPHIC QUESTIONNAIRE . . . . .	137
F	THE PROBLEM-SOLVING METHOD-FORM 1 . . . . .	139
G	THE PROBLEM-SOLVING METHOD-FORM 2 . . . . .	141
H	SPECIFICITY RATING FORM . . . . .	143
I	INFORMED CONSENT FORM . . . . .	144
J	PROBLEM-SOLVING TRAINING <u>WITH</u> A MAJOR FOCUS ON STEP 3 (GENERATING ALTERNATIVES) . . . . .	146
K	PROBLEM-SOLVING TRAINING <u>WITHOUT</u> A MAJOR FOCUS ON STEP 3 (GENERATING ALTERNATIVES) . . . . .	150
L	ESSAY . . . . .	154
REFERENCES . . . . .		155
BIOGRAPHICAL SKETCH . . . . .		162

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INDIVIDUATION, STRESS AND PROBLEM-SOLVING ABILITIES AND  
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The relationships among the family systems variable of individuation, general stress level and social problem-solving ability were investigated. The study proposed that social problem-solving ability significantly mediates the relationship between individuation and stress. The effects of brief problem-solving training in step 3 of D'Zurilla and Goldfried's five-step problem-solving model was also investigated. Also of interest to the study were the effects of the main variables on problem-solving performance post training.

Phase I of the study involved data collection and analyses using two individuation scales of the Personal Authority in the Family System Questionnaire-Version C (PAFS QVC), the stress scale of the Psychological Distress Inventory (PDI) and the Problem-Solving Inventory (PSI).

The relationships between individuation and stress and between stress and problem-solving ability were examined using Pearson correlations. Regression analyses were used to test whether problem-solving ability significantly mediates the relationship between individuation and stress level.

Results from Phase I showed low but significant correlations between individuation and stress and between stress and problem-solving ability. Problem-solving ability was not found to significantly mediate the relationship between individuation and stress.

Phase II of the study compared three treatment conditions related or unrelated to problem-solving. A treatment group was trained in the quantity and specificity principles in the "generating alternatives" step of the five-step model. A treatment control group received a general problem-solving lecture on the five-step model and a control group completed an essay unrelated to problem-solving.

Using a post test only control group design, a multivariate analysis of covariance (MANCOVA) was used to test whether treatment groups differed significantly in either the quantity or specificity of problem solutions generated on a hypothetical problem-solving task. No significant group differences were found in either of these variables.

Multiple regression analyses showed significant relationships between individuation and quantity of solutions generated. Pearson correlations also revealed a significant negative relationship between quantity of solutions and specificity of solutions.

Overall, results from the study suggest that problem-solving ability may in fact be related to individuation level. The negative correlation between quantity and specificity generated by subjects in this study challenges the cohesiveness of the "generating alternatives" technique which advocates using both for effective problem-solving.

## CHAPTER I INTRODUCTION

### Statement of the Problem

Many beginning college students must face the challenges of making major decisions independently for the first time in their lives. In addition, these students typically must adjust to separating from their families, reexamine their values and accept new responsibilities. Thus, the beginning of college life can be an exciting time, but also an overwhelming and stressful time (Rich and Bonner, 1987). In addition to academic pressures, students are often also preoccupied with thoughts of forming new intimate relationships and making important life choices regarding such issues as work and marriage (Lopez, 1987). Indeed, the first years of college can be a time of great self-exploration.

Some researchers believe that family relationship factors can influence college students' abilities to adjust and cope with their new challenging college life. Henton, Lamke, Murphy and Haynes (1980) found that higher crisis reactions in entering college freshmen was related to lower availability of and involvement with family members. Lopez (1987) also noted that college students from divorced homes may have lower academic performance and greater personal

adjustment difficulties. Both of these studies highlight the importance of college counselors understanding the effects of family development on the individual student.

Family development theorists have suggested that coping styles of individuals may be influenced by social rules learned in the family of origin (Bray, Harvey & Williamson, 1987; Fleming & Anderson, 1986; Harvey & Bray, 1991; Harvey, Curry & Bray, 1991; Sabatelli & Mazor, 1985; Schulman, Seiffge-Krenke & Samet, 1987). Bray and his colleagues have found significant relationships between certain types of parent-child relationships and one's coping effectiveness using samples that included college students (Bray et al., 1987; Harvey & Bray, 1991; Harvey et al., 1991). These researchers identified individuation level, defined in the family systems literature as the development of a separate sense of self while maintaining close bonds in the family, as a possible indicator of coping ability. The specific types of coping skills that are present in more individuated persons have not yet been explored.

Issues related to individuation from the family may be heightened at this time when students are faced with leaving the home physically and/or psychologically for the first time. Although the possible effects of family and parent-child relationship factors on the development of self-identity (Bosma & Gerrits, 1985; Enright, Lapsley, Drivas and Fehr, 1980) and coping style (Schulman, Seiffge-Krenke

and Samet, 1987; Siddique & D'Arcy, 1984) have been studied in school-aged adolescents, there is a dearth of such research on college students. Harvey and Bray (1991) did find that college students with higher individuation levels, according to the family systems definition, reported lower levels of stress than students with lower individuation level, and stated that further research is needed to discover what it is about well individuated persons that may positively influence their coping skills.

Like many aspects of psychosocial development, it is possible that gender differences would appear in variables related to individuation, stress and coping. Siddique and D'Arcy (1984) found significant differences in psychological dependence and conformity, variables that seem conceptually linked to individuation level, in their sample of high school adolescents. There has been some support for differences in stress level and coping style according to gender (Holahan & Moos, 1985), but studies also have found no differences (Hamilton & Fagot, 1988). Gender differences may indeed be relevant to this study designed to explore the relationships among individuation, stress and problem-solving ability.

The present study was designed to explore the possible association between level of individuation from the family and coping ability, which may provide valuable information for college counselors working with students with adjustment

and stress management issues. Specifically, this study examined whether the relationship between individuation from the family and low stress is associated with problem-solving ability. Problem-solving ability may be positively related to individuation level and in turn facilitate effective coping that is manifested in low stress. Therefore, problem-solving ability was investigated as a variable that possibly mediates the relationship between individuation from the family and stress level that has been reported in the literature.

#### Need for the Study

The impetus for this study came from literature indicating the need to (1) identify possible factors that mediate the relationship between certain aspects of family/individual development, specifically individuation level, and stress (Harvey & Bray, 1991), (2) further examine the role of family/individual development factors in the stress process in beginning college students (Henton, Lamke, Murphy & Haynes, 1980), (3) examine the utility of the concept of social problem-solving ability as a mediator of the relationship between individuation level and stress level, and (4) to explore the effectiveness of problem-solving training to increase problem-solving skills of college students and others (D'Zurilla & Nezu, 1990; Heppner, Neal and Larson, 1984).

There is a tradition in behavioral medicine that

examines the development of physical and psychological illness from a family systems perspective (Coyne & Holroyd, 1982; Gurman & Kniskern, 1981; Williamson & Bray, 1985). The researchers who support this tradition believe that when individuals encounter stressful situations, they revert to coping and problem-solving methods used in the family of origin. However, most of the research on the family's influence on the individual's coping style has looked at the family simply as a source of support (Bray et al., 1987; Coyne & Holroyd, 1982). Consequently, Harvey and Bray (1991) urge a more specific look at the individual characteristics that develop as a result of certain types of family relationships and lead people to develop better coping skills.

One characteristic that has been identified as being linked to lower stress level is level of individuation from the family. As previously stated, individuation from a family systems perspective refers to the development of a sense of oneself as being separate and independent of family members but still feeling close to family members and having intimate bonds (Bray, Williamson & Malone, 1984a). Healthy individuation from the family seems to be associated with family relationships that are affectionate and mutually respectful, thereby allowing for separateness and differences among family members. Fusion which can be thought of as opposite to individuation characterizes

families and individuals who are overly close and interdependent with unclear interpersonal boundaries. Families of fused individuals are less likely than families of individuated individuals are less likely to have been accepting of differences from the family's status quo and more likely to have fostered an overdependence on what family members and others may think about them (Harvey & Bray, 1991).

Harvey and Williamson (1987) believe that individuation from the family and the related concept of personal authority in the family are the primary sources and predisposing characteristics that influence individuals' coping behaviors. Personal authority which can be thought of as the peak of individuation refers to the level of human development reached when adults assume peerhood with their parents and other adults during the fourth and fifth decades of life. Highly individuated persons appear to function autonomously and with self-direction without being controlled by others, whereas poorly individuated persons with fused relationships in the family of origin are thought to handle their problems in overly emotional ways, taking too much responsibility for others and not enough personal responsibility.

Bray and his colleagues have found significant relationships between individuation/fusion level and stress. Harvey and Bray (1991) found level of individuation from the

family to be negatively related to reported psychological and physical symptoms shown during stressful periods in a sample of college students. These researchers reported that the indicators of either high or low individuation level in their study (i.e., intimacy/individuation with peers, intimacy/individuation with parents, fusion with peers, fusion with parents) accounted for 73% of the variance in psychological distress, suggesting that individuation level is a significant factor in the development of stressful symptoms. Level of family fusion has also been shown to be negatively related to college students' self-reports of mastery and personal adjustment (Fleming & Anderson, 1986). Having found significant relationships between individuation/fusion level and stress/coping ability, Harvey and Bray (1991) specified the need to find the factors that mediate this relationship, such as cognitive style or coping behaviors.

The study of human responses to psychological stress has been extensive both in the medical realm (e.g., Coyne & Holroyd, 1982; Goldberger & Breznitz, 1982) and in the psychological realm (e.g., Cohen & Wills, 1985; Lazarus & Folkman, 1984; Pearlin, Lieberman, Menaghan & Mullan, 1981). The stress reaction can be defined as the negative effects of disruption of homeostasis in an individual's functioning (Pearlin & Lieberman, 1981; Selye, 1982). This stress reaction is often experienced by beginning college students

who have difficulty adjusting to the changes in their lifestyle. These lifestyle changes involve adapting to new challenges, learning to live somewhat independently from family, and making major decisions with less family assistance than in the past (Cantor, Norem, Niedenthal, Langston and Brower, 1987; Henton et al., 1980; Lopez, 1987). Many students do, however, make the transition with few stressful reactions. Counselors working with college students could certainly benefit from a greater understanding of the personal characteristics and/or skills that distinguish students with low-stress reactions from those with high-stress reactions.

Some studies suggest the importance of considering the relevance of family relationship factors in understanding college adjustment and stress management. Henton et al. (1980) found that freshmen who reported more severe crisis reactions early in their college careers described their families to be less available as a source of support than other freshmen whose families were available. Lopez (1987) looked at the effects of parental separation or divorce on college adjustment and concluded that disrupted family relationships may lead not only to more stressful reactions to college life but may also have significant effects on the processes of individuation and ego development. Although the possibility of significant relationships among family factors, the development of individuation from the family,

and stress management ability of college students has been noted, the specific aspects of these variables and nature of the relationships remain unclear.

Certain coping skills may be present in highly individuated persons but not in poorly individuated persons. Social problem-solving may be such a skill. D'Zurilla (1988) defined social problem-solving as the cognitive-affective-behavioral process that an individual uses to cope with problems of everyday living. Personal control and a proactive approach to problem-solving have often been found to be positively related to problem-solving effectiveness (Miller, Lefcourt, Holmes, Ware & Saleh, 1986; Heppner, Hible, Neal, Weinstein & Rabinowitz, 1982). Harvey and Bray's (1991) description of highly individuated persons as making fewer helplessness-inducing attributions, feeling more self-control and being more likely to take a proactive approach to situations seems to characterize good problem-solvers.

There is also empirical evidence that social problem-solving ability is positively related to adjustment and negatively related to variables of psychological distress. Self-perceived problem-solving ability has been found to be positively related to less blameful and more problem-focused coping style (Heppner, Reeder & Larson, 1983), more internal control orientation and less distress due to problems (Nezu, 1985), less impulsivity and avoidance in problem-solving and

more persistence in problem-solving efforts (Heppner, Hibel, Neal, Weinstein & Rabinowitz, 1982) and fewer depressive symptoms (Gotlib, Asarnow, 1979; Nezu, 1985). Heppner (1978; 1982) has written that knowledge of problem-solving skills and their relation to the counseling process are essential to counselors; problem-solving procedures are often very relevant to the typical issues that college students face.

The link between the variables of individuation from the family, stress and problem-solving approach is unclear; yet clarification of this link may assist therapists at college counseling centers in helping students' cope with the barrage of changes that occur during their college years. College students whose healthy development of individuation from the family in adolescence was blocked or impeded may be less well equipped to master new challenges encountered in college; such students may benefit from counseling interventions aimed at improving problem-solving skill.

#### Purpose and Hypotheses of the Study

The major purpose of the study was two fold. First, the study was designed to investigate whether social problem-solving ability significantly mediates the relationship between level of individuation from the family and stress level. Furthermore, the relationships between problem-solving ability and individuation and between

problem-solving ability and stress were also investigated.

The secondary purpose of this study was to test whether students given a brief social problem-solving training intervention will perform better on a hypothetical problem-solving task than students who do not receive this training. The study proposed that problem-solving training in one step of D'Zurilla and Goldfried's (1971) five-step problem-solving training model would effect significantly better problem-solving performance in a group of students who receive this training versus those who do not. This training has been shown to be successful with college students elsewhere (Heppner et al., 1984). The results of this aspect of the study were expected to provide valuable information for counselors of college students who report stress management as a presenting problem.

The specific hypotheses of the study were that

- (1) level of individuation from the family has a significant positive relationship with social problem-solving ability;
- (2) social problem-solving ability has a significant negative relationship with stress level;
- (3) the relationship between level of individuation from the family and stress level differs significantly according to social problem-solving ability, and
- (4) a treatment group provided with problem-solving training would perform significantly better on step 3

(generating alternative solutions) of D'Zurilla and Goldfried's (1971) five-step problem-solving approach than a treatment control group and a no-treatment control group.

The following exploratory research questions were also investigated:

- (1) Is individuation level, stress level and/or problem-solving ability (the main variables of study in this research) significantly related to gender and/or the following family relationship variables: (a) parental loss due to divorce, separation or death; (b) time of such parental loss; and/or (c) conflict level in the family?
- (2) Do baseline (i.e. pre-problem-solving training) levels of individuation, stress or social problem-solving ability predict performance of step 3 (generating alternative solutions) of D'Zurilla and Goldfried's (1971) problem-solving method after receiving problem-solving training?
- (3) Do the effects of problem-solving training in step 3 (generating alternative solutions) of D'Zurilla and Goldfried's (1971) problem-solving method differ significantly according to gender?

Limitations of the Study

Two limitations of this study include (1) the possible confoundment of the relationship of the individuation

variable with stress by other family relationship factors and (2) the limited ability of the results of the study to establish the direction of causality between the independent and dependent variables.

Certain family relationship variables may affect the development of individuation from the family, such as parental loss due to divorce, separation or death, and level of conflict in the family. Since individuation from the family is to a certain extent a measure of psychological independence, people who lose a parent due to marital separation, divorce or death may be forced to individuate earlier than others who grow up with two parents (Lopez, 1991; Lopez, Campbell & Watkins, 1988). Also the level of conflict versus cohesion that a family experiences can affect what may have been the normal development of individuation. Data on parental loss and perceived family conflict were collected in this study and examined for their influence on the major variables of study in order to decide whether or not to include them in the analyses.

Although the study was aimed at assessing whether problem-solving ability would more clearly explain why people who are more highly individuated (as defined in the family systems literature) have lower stress, the correlational nature of the study would leave open the question of which variable actually influences which variable. Therefore, follow-up analyses on these

correlations were planned to be utilized to provide some support for possible causal relationships.

## CHAPTER II LITERATURE REVIEW

The literature review is divided into four sections. The first section provides the operational definition of individuation in this study, including the psychodynamic and family systems background literature on individuation and research on the association between family factors and the development of illness. The second section provides the operational definition of stress in this study, including studies on the link between stress and illness and research on stress in college students. The third section operationally defines social problem-solving, describes its link to stress management, and gives an overview of problem-solving training. The fourth section presents other factors that may affect the results of the study due to possible associations with the major variables of individuation level, stress level and problem-solving ability.

### The Individuation Construct

A major underlying premise of this study was that level of individuation from the family is significantly related to a person's physical and psychological health. This section of the literature review describes the theoretical foundations of individuation from a family systems standpoint (i.e., the definition of individuation to be used

in the current study), the relationships found between individuation and health, and the individuation and family process measures to be used in this study.

#### Theoretical Foundations of the Family Systems Definition of Individuation

Individuation has been described variously by theoreticians in the psychodynamic realm (Blos, 1979, Goldberger, 1980), in social learning theory (Hill & Holmbeck, 1986), in the cognitive-developmental stage theory realm (Erikson, 1968; Hill & Holmbeck, 1986; Sabatelli & Mazor, 1985) and in the family systems literature (Bray, Williamson & Malone, 1984a; Falicov, 1988; Harvey et al., 1991; Harvey & Bray, 1991; Hill and Holmbeck, 1986). All of these theories have some bearing on how the individuation construct is used in the family systems literature which is the major area of literature on which the current study is focused.

Traditional psychoanalytic descriptions of individuation referred to the evolving definition of self in relation to others, from the infant's first recognition of body boundaries to adult experiences of self-identity in intimate relationships (Shapiro, 1988). Issues of separation and individuation have also been viewed as primarily intrapsychic phenomena, such as that seen in Kohut's (1978) emphasis on the importance of the integrated, cohesive self in individual development. Kohut in fact raised objections to interindividual definitions of

separation-individuation, such as those utilized by Mahler, decrying the importance of being nondependent in order to have healthy psychological functioning (Kohut, 1978).

Other psychoanalytic conceptualizations of development, such as Mahler's (Goldberger, 1980), were based more on observations of mother-infant interactions and embodied a trend towards more interpersonally oriented definitions of the separation-individuation construct. These conceptualizations provided inroads to a more long-term way of viewing development and another more systemic sense of the importance of the balance between feeling separate but also being able to form intimate bonds along with healthy individuation. Blos (1979) described adolescence as the second individuation process, when there is an urgency for changes accompanied by the threat of personality reorganization. The adolescent must strike a balance between successfully asserting his or her independence and breaking away from parental objects.

Developmental stage theories and family systems approaches take a more interactive view of the individuation process. Both emphasize the importance of the mediating impact of the process of individuating from the family on identity formation during adolescence and early adulthood. As they grow older, children and adolescents develop feelings about an optimal level of togetherness versus separateness through their interactions with family members,

thus learning about dependence and independence and reliance on self versus others. Such issues of interpersonal distance regulation are thought to affect their interaction with others outside of the family system as well as noninterpersonal decision-making processes (Sabatelli & Mazor, 1985). The significance of the individuation process as defined in the family systems literature can be explained by defining the relationships between the concepts of individuation, differentiation and identity formation, and the role of the family system.

The family systems individuation process can be basically described as the process by which a person becomes increasingly differentiated from a relational context. There is a phenomenological shift that causes a person to see him or herself as a separate person, with a greater appreciation for body boundaries that make for independent beliefs, feelings and actions. The adolescent to early-adulthood transition is an important time in relation to the individuation process because it is then that children increase their psychological distance from parents and need to become capable of living with greater autonomy (Fleming & Anderson, 1986; Sabatelli & Mazor, 1985; Shapiro, 1988).

Differentiation refers to the same process of the development of separateness but more specifically addresses the individual's relationship to others in this process. Developmental theories of the self-other differentiation

process in children cite the beginning of understanding that one is physically separate from a parent (Piaget, cited in Shapiro, 1988). In normal, healthy family relations, children eventually develop a sense of their psychological separateness from parents and this in turn will have some influence on their behavior.

The family systems literature, which provides the basis for the definition of individuation used in this study, attempts to expand our understanding of how individuation affects behavior. According to transgenerational family theory, the psychological separateness that eventually develops is largely dictated by the family system's attitude toward interpersonal processes. Individuation is the process by which an individual becomes increasingly differentiated from his or her relational context, meaning one's family of origin nuclear family (Bray, Williamson & Malone, 1984b). Family systems which allow for optimal differentiation of the family's members show behavior patterns that encourage cohesion and adaptability and welcome the expression of individual thoughts and feelings, making the necessary changes or compromises to keep harmony in the system. When a family system resists individual change and growth, fusion can result that leaves individuals with no clear sense of self and perpetuates overdependence on the family system (Bowen, 1978; Kerr, 1981; Sabatelli & Mazor, 1985; Williamson & Bray, 1988).

The level of differentiation versus fusion in the system is thought to teach individual members about certain psychological processes such as interpersonal distance regulation and adaptation to change. Families that show a high level of fusion react drastically and emotionally to the emerging characteristics of their young because change is perceived as a threat to the status quo of the family system. The process of reorganization of self-identity, which is normal and continuous in human development engenders anxiety and can affect the development of self-identity as well as decision-making processes in other aspects of life (Shapiro, 1988; Williamson & Bray, 1988). Bowen (1978) described the feeling-controlled world of individuals who are poorly differentiated and tend to react and make decisions based on feelings rather than thoughts. Well-differentiated people are freer to engage in goal-directed activity, and to give of themselves in intimate relationships without fear of losing themselves and their decision-making capabilities to the other person. High fusion reflects unresolved emotional attachment to the family of origin, and leads individuals to feel overly responsible for significant others and less concerned with themselves (Shapiro, 1988; Williamson & Bray, 1988).

Erikson (1968) believes that the adolescent must achieve a sense of psychological and physical distance from parents in order to complete identity formation. An

adolescent's ego identity comes from developing a feeling of oneself as a whole person distinct from others; this addresses the conflict between an adolescent's need for growth and the parents' need for continuity which forces the adolescent to challenge existing family beliefs (Kidwell, Fischer, Dunham & Baranowski, 1983). Josselson (cited in Sabatelli & Mazor, 1985) describes the systematic shifts between psychological autonomy and connection that simultaneously impinge on and are affected by the process of individuation from the family. One of the primary tasks of adolescence is indeed the adequate completion of separation from the family of origin in order to be able to formulate one's personal life goals with a certain degree of self-confidence and acceptance by the family of origin. More highly differentiated family systems show great adaptability and flexibility in the face of change, thus maintaining an adequate balance between separateness and connection of family members (Sabatelli & Mazor, 1985).

For the purpose of this study, individuation was defined as an individual's having achieved a level of differentiation that allows him or her to function within relationships as autonomous and self-directed without being emotionally constricted, impaired, or feeling overly responsible for significant others (Harvey & Bray, 1991). The study examined whether level of individuation from the family is associated with other psychosocial characteristics

that are related to taking responsibility for self versus others, namely perceived level of stress and approach to social problem-solving.

#### Individuation, Health and Coping

Family process variables as they relate to the development of physical and psychological symptoms have recently come under scrutiny in the health psychology literature (Coyne & Holroyd, 1982). This literature generally has examined the family's influence as a global assessment of the family's role in supporting the individual (Millon, Green & Meagher, 1982). More recently, the research has focused on more clearly defining the impact of family processes on an individual's psychological development and his or her subsequent responses to stress and development of distress (Bray, Harvey & Williamson, 1987; Harvey & Bray, 1991; Harvey et. al, 1991). Empirical findings from these two areas of the literature support the relationship between level of individuation from the family, style of coping, and health and illness.

Reiss and Olivieri (1980) used the term family paradigm to characterize the family's intrafamilial interactions as well as their basic assumptions about the outside world. Families high in problem-solving skills can reappraise an external threat, integrating responses from all members and thereby perceiving the problem as manageable (Shulman, Seiffge-Krenke & Samet, 1987). Undifferentiated families

and individuals are more likely to lean towards preserving the familiar and squelching exploration of new and creative solutions; highly differentiated families and individuals encourage exploration of new problem-solving methods, fostering a sense of increased control over individual destiny and prompting family members to choose healthy responses that promote personal well-being (Shapiro, 1988; Williamson & Bray, 1988).

Shulman et. al (1987) believe that family constellations that are supportive to change foster more adaptive, self-confident attitudes toward dealing with the demands of the outside world, whereas overprotective and highly controlled family climates would be more likely to interfere with an adolescent's development of a sense of mastery and of competent methods for dealing with stressful situations. Shulman et al (1987) surveyed 186 twelfth grade students, looking at the relationship between coping ability and family environment using the Family Environment Scale (FES) (Moos & Moos, 1986). The researchers found that family cohesion and respect for individual development were positively related to functional coping, and lack of family support and an overcontrolling family climate were related to dysfunctional coping.

Fleming and Anderson (1986) studied several variables of personal adjustment in late adolescents in relation to self-reported level of individuation from the family as

defined by their perception of their level of family fusion. One hundred and twenty-six undergraduate students were given measures of maladjustment, mastery, self-esteem and physical health as well as the Fusion and Triangulation subscales of the Personal Authority in the Family System Questionnaire (PAFS-Q) to be used in the present study. Triangulation refers to parents' tendency to involve a child in their own conflict situation, and is thought to have a negative impact on the individuation process. High scores on the Fusion and Triangulation subscales were taken to be indicative of a low level of individuation. Results showed that fusion was significantly positively related to low self-esteem and mastery, as well as college maladjustment and health problems. Triangulation was also significantly negatively related to self-esteem and mastery. Although the findings supported the authors' hypotheses, they acknowledge that the correlations do not make it possible to predict causal direction and that success in the social environment may have facilitated the development of individuation rather than vice versa.

Individuation as Measured by the Personal Authority in the Family System Questionnaire

Bray and his colleagues conducted a series of studies that attempted to define more define the link between family processes and the development of physical and psychological symptoms of distress (Bray, Harvey & Williamson, 1987; Bray, Williamson & Malone, 1984a; Harvey & Bray, 1991; Harvey,

Curry & Bray, 1991). Drawing largely from intergenerational family systems theory, they developed the Personal Authority in the Family System Questionnaire (PAFS-Q). Version C is a modified version for use with college students and thus will be used in this study. An explanation of the scales and some of the relevant findings follow.

Intergenerational family systems theory provided the basis for the development of the PAFS-Q. Bray et al. (1987) believe that the family of origin is the most important social group that influences individual development. Optimal family interaction styles should result in individuals who are autonomous, self-directed and not controlled by significant others; unhealthy interactions lead individuals to have a more intense interpersonal reactivity and take less responsibility for themselves, putting themselves at greater risk for symptom development. The specific concepts utilized by the PAFS-Q include individuation from the family, differentiation of self, fusion, personal authority in the family system, triangulation, intimacy, and intergenerational intimidation.

Individuation from the family and differentiation of self both refer to the individual's development of autonomy. Fusion is the opposite pole of differentiation and refers to diminished autonomous functioning and greater emotional reactivity to interpersonal and other types of stress. Personal authority is the step beyond differentiation when a

person assumes peerhood with all other human beings by taking responsibility for one's own life experiences while continuing to relate intimately to others. Bray and his colleagues believe that true personal authority develops in the fourth and fifth decades of life when adults begin to relate to their parents as equals, thus assuming full adulthood. Healthy intimate relationships should involve free expression of mutual respect and self-disclosure without either partner giving up their individuation.

The opposite pole of personal authority is intergenerational intimidation, and this signifies a lower level of individuation that perpetuates the parent-child power hierarchy and makes a person continue to allow a parent's approval to dictate personal actions. The presence of triangulation, or the inappropriate emotional involvement of a child, including adult children, in the problems of the parents, is another index of intergenerational intimidation. (Bray et. al, 1987; Harvey & Bray, 1991; Harvey, Curry & Bray, 1991).

Although Bray and his colleagues believe that personal authority in the family system develops in the fourth and fifth decades of life, a modified version of the PAFS-Q has been shown to be valid and reliable for use with college students (Bray et. al, 1987; Harvey et. al, 1991). The Personal Authority in the Family System Questionnaire-Version C (PAFS-OVC) differs from the original PAFS-Q in two

ways: (1) two scales on the PAFS-Q, Spousal Intimacy and Spousal Individuation/Fusion, were modified and renamed Peer Intimacy and Peer Individuation/Fusion on the PAFS-OVC, and (2) the Nuclear Family Triangulation Scale on the PAFS-Q was not included in the PAFS-OVC.

Significant relationships have been found between individuation level and physical and psychological health in middle-aged adults and in college students. Bray et. al (1987) administered the PAFS-Q with measures of family cohesion, marital adjustment and stress-related physical and psychological symptoms to a group of eighty adults whose average age was 40.3 years. Multiple regression analyses revealed that higher individuation, intimacy, personal authority and less triangulation and intimidation as measured by the PAFS-Q were correlated with less health distress. For part 2 of the same study, 360 undergraduates, 75% of whom were freshmen, were administered the PAFS-OVC, the Psychological Distress Inventory (PDI) to be used in the present study, and a health distress scale. Multiple regressions showed similarly that greater individuation, intimacy and personal authority and less triangulation and intimidation correlated with better health and less life stress. Bray et. al (1987) acknowledged that these findings were consistent with other research that has found significant relationships between family support and stress/distress, and urge further investigation of how the

quality of family relationships and individuation level may affect the development of health-related personality characteristics.

Harvey et. al (1991) examined the relationship between scores on the PAFS-Q and several measures of stress, physical symptoms and health-enhancing behaviors in a sample of 511 college students and 488 of their parents. The authors utilized the LISREL VI program which provides a structural equation model that allows for predictions about causal direction, about the strengths of directional influence and about mediating factors. The best predictors of parents' health distress was level of individuation/fusion experienced in spousal and family of origin relationships, and this relationship was independent of life stress. The strongest predictor of psychological distress was self-perceived level of health distress, followed by quality of nuclear family relationships. Parents experiencing emotional distress were less likely to engage in health-promoting behaviors, and fathers with lower spousal intimacy and higher triangulation with their children were less likely to take care of themselves physically; these findings are consistent with the theory that family relationship factors influence personal health care in individuals (Harvey et. al, 1991).

In a similar study, Harvey and Bray (1991) administered the PAFS-QVC along with measures of life stress,

psychological distress, health-enhancing behaviors and health distress to 319 college students. They found that degree of individuation and intimacy in intergenerational and peer relationships was directly related to subjects' health-related behaviors, accounting for 30% of the variance in this factor. The degree of intimacy/individuation in peer relationships was found to be directly related to subjects' psychological distress, and the complete model accounted for 73% of the variance in psychological distress. The authors take these findings as adequate indicators of the importance of interpersonal and familial relationships on health and recommend further research on factors such as cognitive style and coping abilities in order to more clearly understand why well differentiated individuals seem to show fewer symptoms of stress (Harvey & Bray, 1991).

In summary, Bray and his colleagues have found significant relationships between several interpersonal process variables thought to be indicative of level of individuation from the family and measures of health distress and psychological stress and distress. These results carry certain implications for counseling and stress management training with possibilities for preventive as well as remedial work. Further research is needed to discover more specific characteristics of well individuated/differentiated persons and why they appear to exhibit healthier lifestyles and therefore report low stress

levels. The present study was intended to examine whether one form of coping, namely social problem-solving, is a significant factor that mediates the relationship between individuation level and felt stress.

### Stress

#### Concept of Psychological Stress

The evolution of the concept of psychological stress reflects a gradual movement from environment- to person-related conceptualizations of stress. Initially, scientists were solely interested in the physiological disruption of homeostasis, or constancy, in the human body as a result of physical insults (Selye, 1982) or harmful behavior patterns (Lazarus & Folkman, 1984). Selye's (cited in Goldberger and Bresnitz, 1982) pioneering work as a medical student studying toxic substances led to his coining the term "general adaptation syndrome," which referred to changes in the body's organs when a noxious substance was introduced. These organ changes were recognized as objective indices of stress and became the basis of the entire stress concept (Selye, 1982). Selye's (1982) general adaptation syndrome concept acknowledged three stages of bodily reactions: alarm reaction, stage of resistance and stage of exhaustion. These were seen as automatic bodily responses, what Selye called "stressors" (Lazarus, 1984). Following Selye's 1955 address to the American Psychological Association, psychologists began to explore the possible

parallels between Selye's theory and the process of the development of psychological symptoms. Stress theory was seen to pose interesting explanations about the relationship between changes and events in the environment and human psychopathology (Lazarus, 1984).

Eventually the focus of psychological research on stress turned to the importance of the differential effects of stress on humans. World War II and the Korean War were pivotal in directing stress research. Soldiers in these wars who experienced concentration camps, traumatic injuries and bereavement were found to have such problems as bleeding ulcers, severe anxiety and psychotic behaviors. These events spawned several decades of research looking at how the stressfulness of major life events might be associated with decreases in skilled performance. For a while, much research sought to determine what characteristics in the environment led to stress responses, without looking at person variables. Studies purporting direct correlations between number of life events and stress reactions were ultimately not validated (Coyne & Holroyd, 1982; Holroyd & Lazarus, 1982; Lazarus, 1984; Pearlin, Lieberman, Menaghan & Mullan, 1981).

As researchers began to give more attention to individual differences in response to psychological stress, theories of stress that were more interactional, or relational became popular (Holroyd & Lazarus, 1982; Lazarus,

1984; Coyne & Holroyd, 1982). Lazarus (1984) argued that not only major life events had stressful consequences, but also smaller daily life strains, and that the variation in ability to deal with these everyday strains is too great to simply define stress at the level of environmental conditions. The most popular conceptions of stress now take into account the interaction between the environmental stimuli, the person's characteristics and the power of the person to deal with these environmental stimuli (Coyne & Holroyd, 1982).

For the purpose of this paper, psychological stress will be defined as the negative feelings that result when a person assesses the situations in his or her environment as "taxing or exceeding his or her resources and endangering his or her well-being." (Lazarus, p. 19, 1984). The present study used self-reports of people's perceptions of the amount of stress felt as a result of life events in order to determine the association of individuation level with felt stress, and the relationship between problem-solving skill and level of stress felt.

#### Stress, Personality Variables and Coping

Interactional theories of stress gave rise to an interest in identifying the variables that mediate the impact of stress-provoking situations on different individuals (Coyne & Holroyd, 1982; Holahan & Moos, 1985; Holroyd & Lazarus, 1982; Pearlin, Lieberman, Menaghan &

Mullan, 1982). Two interacting processes that have been identified as mediating factors are appraisal and coping (Coyne & Holroyd, 1982; Holroyd and Lazarus, 1982; Lazarus, 1984; Moos & Billings, 1982). Appraisal refers to the person's assessment of how threatening a situation is whereas coping refers to the more specific cognitive and behavioral efforts to manage threatening situations. (Coyne & Holroyd, 1982; Holroyd & Lazarus, 1982; Lazarus, 1984). Certain personality variables have been used to make predictions about the appraisal process; certain coping behaviors have been shown to influence the effects of stress.

The concept of appraisal is useful in studying static personality characteristics and their relation to stress in that it allow us to make predictions about the cognitive and self-conceptual variables that are related to good stress management skills. In the face of stress, part of the appraisal process involves a survey of one's self-beliefs and the availability and effectiveness of one's coping abilities (Coyne & Holroyd, 1982). Lazarus (1984) noted that it is rare to find stress and adaptive coping style discussed nowadays without reference to the topic of personal beliefs about self-control and the ability to direct one's life. Several personality variables related to personal control have been found to be related to lower self-reported stress level, such as self-efficacy, self-

confidence, perceived control and internal locus of control (Holahan & Moos, 1987).

Moos and Billings (1982) discussed the notion of the competent self as involving a set of favorable self-attitudes, a sense of personal efficacy and interpersonal trust, a realistic goal-setting attitude, and an active coping approach. Students found to rank high on a scale measuring the competent self were found to have lower depression and fewer social problems, which may indicate good stress management ability. These characteristics parallel the constellation of traits that Harvey, Curry and Bray (1991) and Harvey and Bray (1991) attribute to highly individuated persons as possible explanations for their resistance to the negative effects of stress, namely having positive self-expectancy, greater self-esteem and less guilt, regret and self-doubt in their decision-making processes.

Two types of problem-solving style identified in the literature are emotion-focused coping and problem-focused (Lazarus, 1984). Emotion-focused coping involves mentally reframing the stressful situation to be more manageable without physically altering one's response to the situation. In contrast, problem-focused or active coping involves making the changes in oneself or in the environment to deal with the stressful situation; such coping strategies are believed to be more available to those who believe in their

effectiveness as problem-solvers (Lazarus, 1984; Coyne & Holroyd, 1982).

Researchers have attempted to determine what types of personalities utilize what types of coping strategies. Holahan and Moos (1987) examined the coping strategies of 400 community adults and 400 clinically depressed adults to see if any relationships existed between certain personal and contextual variables and coping strategies chosen. They found that more self-confident and easygoing people were more likely to report active rather than avoidant coping strategies. The present study attempts to discover whether highly individuated persons show a more skilled approach to social problem-solving, an active coping strategy.

#### Measuring Stress

As a greater appreciation of the interactional nature of the effects of stress developed, the trend in stress measurement techniques progressed from being more quantitative to being more qualitative in nature. Originally, the more popular stress measures were concerned with simply measuring the number of stressful events in a person's life (Dohrenwend & Dohrenwend, 1982). More recently, the trend in stress measurement is towards measures that incorporate the person-environment interactional concept of stress (Kanner, Coyne, Schaefer & Lazarus; Lazarus, 1984; Pearlin, Lieberman, Menaghan & Mullan, 1981).

There has also been a greater interest in the impact of regular daily hassles rather than simply looking at major life events. Lazarus and his colleagues (Folkman and Lazarus, 1988; Lazarus, 1984; Kanner et. al, 1981) believe that the effects of familiar daily problems may be different than those of major life events that may have resulted in the development of certain coping strategies. Kanner et. al (1981) administered a life events scale and a daily hassles scale to 100 middle-aged community residents over a ten-month period and found that the daily hassles measure was in fact a better predictor of concurrent and subsequent psychological symptoms.

The stress measure chosen for this study is the Psychological Distress Inventory (PDI) (Lustman, Sowa and O'Hara, 1984). The authors attempted to design a stress measure that would have face validity with college students and thus included items based in part on their actual frequency of occurrence. Some items were also derived from four criterion measures--the Beck Depression Inventory (BDI), the State-Trait Anxiety Inventory (STAI), the Cornell Medical Index (CMI), and the Life Stress Questionnaire (LSQ). The PDI itself consists of four subscales of depression, anxiety, somatic discomfort and stress. Since there is no overall stress score and inclusion of all four subscales could significantly reduce the power of the statistical analyses, only the stress subscale was used in

the present study. The PDI has been shown to correlate positively with other measures of psychological distress in college students (Harvey & Bray, 1991) and to reliably discriminate between clinical and non-clinical populations (Lustman et al., 1984).

#### Social Problem-Solving

Problem-solving ability has been shown to be related to stress level (Glyshaw, Cohen & Towbes, 1985; Nezu, 1985) and depression symptoms and number of reported personal problems (Heppner, Baumgardner & Jackson, 1985). There is evidence that problem-solving style is related to certain cognitive and behavioral variables (Heppner, Hibel, Neal, Weinstein & Rabinowitz, 1982; Heppner, Reeder & Larson, 1983; Miller, Lefcourt, Holmes, Ware & Saleh, 1986). This study hypothesizes that the relationship between level of individuation from the family and self-reported stress level is mediated by problem-solving ability. The study will also investigate whether (1) problem-solving training in step three of D'Zurilla and Goldfried's (1971) problem-solving method will improve problem-solving performance and (2) whether or not problem-solving performance subsequent to problem-solving training is related to pre-training individuation level, stress level or problem-solving ability. This section of the literature review will define social problem-solving, discusses the relevant findings on the relationships between social-problem solving ability,

stress, and variables related to the family systems definition of individuation, and describes the social problem-solving measures to be used in the present study.

#### Definition of Social Problem-solving

D'Zurilla and his colleagues (D'Zurilla, 1988; 1990; D'Zurilla & Goldfried, 1971; D'Zurilla & Nezu, 1990; Nezu & D'Zurilla, 1979) define the social problem-solving process as the cognitive-affective-behavioral process that a person uses to identify, discover or invent effective coping responses to deal with everyday environmental challenges. Social problem-solving has also been called personal problem-solving (D'Zurilla, 1988; Gotlib & Asarnow, 1979; Heppner, Hibel, Neal, Weinstein & Rabinowitz, 1982), and is distinguished from impersonal problem-solving, the latter of which has been studied in laboratory experiments involving mechanical apparatuses like water jugs and anagrams. Research on social problem-solving is more concerned with how people maneuver their way through certain social and personal situations in order to meet their daily needs. Subjects may be presented with hypothetical social situations or may be asked to describe their general approach to handling their daily and/or long-term problem situations (D'Zurilla, 1988). Using this type of data base, researchers in counseling and social psychology have attempted to study and more clearly delineate the social problem-solving process.

In accordance with social learning theory, D'Zurilla and Goldfried (1971) described the problem-solving task as one of learning to combine previously utilized responses in new ways in order to deal with new problems. The social problem-solving process can be said to have three components: (1) problem-orientation cognitions, (2) specific problem-solving skills, and (3) basic problem-solving abilities. Problem-orientation cognitions refer to a person's general attitude and mental response toward problems, including beliefs about personal control and the importance of solving the problem. Specific problem-solving skills are the set of skills that comprise the sequence of goal-directed activities that must be performed in order to solve a problem, and basic problem-solving abilities underlie a person's ability to learn and implement problem-solving procedures. The third component, basic problem-solving abilities are those that underlie and affect a person's ability to implement general problem-solving procedures on a practical level, and involve processes out of the individual's immediate awareness (D'Zurilla, 1988). This study is mainly concerned with the first two components of the social problem-solving process, problem-orientation cognitions and specific problem-solving skills which are more susceptible to be influenced by social learning processes, such as family interactions, than are basic problem-solving abilities.

Problem-orientation refers to a person's initial cognitive and behavioral reactions or responses when faced with a problem situations. Cognitive problem-orientation is defined by such variables as causal attributions with regard to the problem and beliefs about personal control regarding the problem situation, whereas behavioral problem-orientation is defined by a person's tendency to approach versus avoid problems and problem-solving.

The problem-solving skills component of the model consists of a specific sequence of goal-directed tasks that should take place in order for the most effective problem-solving to occur (D'Zurilla, 1988; 1990; D'Zurilla & Goldfried, 1971; D'Zurilla & Nezu, 1990). These tasks include: (1) problem definition, which involves adequate gathering of facts, clarification of the real problem, and realistic goal setting, (2) generating alternative solutions, which involves coming up with as many solutions as possible while withholding premature judgement as to which solution would be the best, (3) decision making, which involves evaluating which alternative action would be most beneficial in solving the problem, and (4) solution implementation and verification, which involve putting the solution to use in an effort to evaluate its effectiveness, and possibly modify it. D'Zurilla and his colleagues have written extensively on the utility of the five stage problem-solving approach in the areas of stress management

(D'Zurilla, 1990), psychotherapy (D'Zurilla, 1988), and problem-solving research (D'Zurilla & Nezu, 1990).

#### The Problem-Solving Inventory (PSI)

Heppner (1978) reviewed D'Zurilla and Goldfried's (1971) problem-solving model with the interest of relating this literature to the counseling process. Heppner's (1978) investigation of research from psychological, industrial and counseling fields led him to conclude that there were certain skills associated with effective problem-solving, and that more research was necessary to clearly outline them. The Problem-Solving Inventory (PSI) (Heppner & Peterson, 1982) was later developed in order to conduct research in problem-solving that would be more applicable to the social problem-solving process than the extant problem-solving research that had to do with simple laboratory tasks like water jar problems (Heppner, 1978; Heppner & Petersen, 1982, Heppner et. al, 1982).

With the exception of Platt and Spivack's Means-End Problem Solving Procedure, Heppner and Petersen (1982) stated that there was no problem-solving measure that actually tapped into a person's methods of dealing with the everyday difficulties that might require a problem-solving process in order to arrive at the most adaptive solution. Heppner and Petersen (1982) developed a general self-report scale that gives a global score of problem-solving ability derived from questions about one's general approach to

solving personal or social problems. Heppner and his colleagues have published several studies utilizing the PSI (Heppner, 1978; Heppner, Baumgardner & Jackson, 1985; Heppner & Petersen, 1982, Heppner et. al, 1982; Heppner et. al, 1983) and other researchers have described it to be valid and reliable in their research (Bonner & Rich, 1988; Nezu, 1984;1985;1986).

Relationship Between Social Problem-solving Skills and Individuation Factors

Although no empirical data has been gathered demonstrating a relationship between individuation level as defined in the present study and social problem-solving skills, theoretical formulations of these two constructs suggest that a relationship may exist. Some of the variables related to coping and orientation toward problem-solving that are believed to be present in more highly individuated persons include internal locus of control, greater self-confidence in decision-making, and being more likely to take control with regard to personal well-being (Harvey & Bray, 1991). Several studies have shown relationships between these variables and problem-solving ability.

D'Zurilla and Goldfried (1971) believed that persons with the most effective orientation toward problem-solving would acknowledge that problems are a normal part of life, feel that they can in fact cope with most problems, recognize when a problem arises and then be motivated to act

to solve the problem. According to their research, coping ability, which evolves from the individual's interpersonal style in dealing with transitional life tasks, was related to problem-solving confidence and general beliefs about being able to control the environment. D'Zurilla's (1988) extensive survey of the problem-solving literature also led him to conclude that effective problem-solvers were more likely to use rational decision making strategies and to be less intuitive and less dependent in their decision-making processes than poor problem-solvers.

Some studies have shown that a positive attitude toward problems is related to better problem-solving outcome. Folkman, Lazarus, Dunkel-Schetter, DeLongis & Gruen (1986) studied coping style in relation to adequate problem resolution. They interviewed 170 community residents once per month over a six-month period to find out how they coped with stressful situations as they arose. Those who reported having good problem resolution also reported using planful problem-solving styles and positive reappraisal, meaning that they accepted problems as a challenge and a chance for personal growth. Indeed, some of the characteristics that D'Zurilla (1990) believes contribute to effective problem-solving coping include adaptive flexibility and confidence in one's self-management capabilities.

Heppner et. al (1982) found several differences between self-perceived effective versus ineffective problem-solvers.

The Problem-Solving Inventory (PSI) (Heppner & Petersen, 1982) was administered to 200 introductory psychology students, and 34 of the 40 highest and lowest scorers were selected to be interviewed about their problem-solving styles and number of current problems. Participants in the study completed interviews describing their intrapersonal and interpersonal problem-solving styles, and also completed the Mooney Problem Checklist which consists of 11 scales that survey major problem areas such as social-psychological relations, adjustment in college, and vocational and educational concerns. Self-appraised effective problem-solvers tended to see problems as a normal part of life, to believe more in their ability rather than luck for successful problem-solving, and to be more systematic and persistent in their approach to problem-solving than ineffective problem-solvers.

In a study on marital problem-solving, Miller, Lefcourt, Holmes, Ware and Saleh (1986) examined the relationship between marital locus of control and problem-solving style. Individuals with an internal locus of control for marital satisfaction, meaning that they felt that marital relationship outcome was the result of their own efforts, were more active and direct in their problem-solving than externals. Internals were also more effective in communicating and achieving their desired goals, providing support for the belief that internal locus of

control may be associated with better problem-solving ability.

In summary, several of the variables thought to characterize highly individuated persons, as defined by the family systems literature, are also believed to characterize effective social problem-solvers, including internal locus of control, problem-solving self-confidence and action orientation in the face of problems or stress. The present study hypothesized that individuation level, thought to be positively related to internal locus of control and more effective coping abilities, is significantly positively related to social problem-solving ability.

#### Problem-solving as a Means of Coping with Stress

Social problem-solving has been described as a means of coping (Lazarus, 1984; D'Zurilla, 1990) and, as previously cited, has been found to be associated with lower stress level. Given the typical adjustment issues that beginning college students face, such as doing well academically, establishing future goals and managing time (Cantor, Norem, Niedenthal, Langston & Brower, 1987), good problem-solving skills may be important to have as a coping strategy and a means of achieving their goals. This study hypothesizes that the positive relationship which has been found between individuation level and low stress is mediated by problem-solving abilities of beginning college students. Several studies have found a negative association between problem-

solving ability and stress level.

D'Zurilla (1990) advocates the use of problem-solving skills for effective coping because they provide the individual with a systematic method for choosing the most effective coping responses. In keeping with Lazarus and Folkman's (1984) transactional model of stress, D'Zurilla (1990) proposed a transactional/problem-solving model that centers on the three concepts of stressful life events, emotional states and problem-solving coping. The model takes into account the idea that daily stressful situations can trigger certain individual responses, and that the immediate response is usually some emotional state that includes specific cognitive appraisals, aversive feelings and decisional conflicts. Problem-solving is then seen as a general coping process that determines what the most adaptive coping strategy will be in a given situation. (D'Zurilla, 1990; Lazarus & Folkman, 1984).

Nezu conducted a series of studies (1984; 1986; Nezu & Ronan, 1988) to try to determine whether problem-solving ability was associated with fewer symptoms of stress. The first provided support that problem-solving ability was related to lower self-reports of distress associated with everyday problems. Nezu (1984) administered the Problem-Solving Inventory (PSI) to 213 undergraduates, also giving the students who scored 1 standard deviation above ( $n = 43$ ) and 1 standard deviation below ( $n = 38$ ) the mean on the PSI

additional measures of depression, anxiety and current life problems. Results showed that self-appraised ineffective problem solvers reported more distress related to life problems. Nezu (1984) acknowledged that due to the fact that the correlations were done only with subjects on the extreme ends of the problem-solving ability continuum, generalizability of the findings to average problem-solvers may be limited.

A later study examined the moderating function that social problem-solving ability might have over the relationship between stress and depression (Nezu, 1986). Subjects completed the Beck Depression Inventory (BDI), the Life Experiences Survey (LES), and the PSI, and results were analyzed to determine whether social problem-solving skills would predict level of depression over and above that predicted by current level of stressful conditions. Results showed that subjects with high problem-solving ability and high stress level showed a less depressive mood than subjects with low problem-solving ability and high stress. The interaction between problem-solving ability and stress level in fact accounted for three times the variance in depression that was accounted for by life stress scores alone (Nezu, 1986).

Nezu and Ronan (1988) believed that they could significantly improve the design of this previous study by making it a prospective study. Keeping the basic hypotheses

that problem-solving ability mediates the relationship between self-reported life stress and depressive symptoms, they also assessed life stress and depressive symptoms at a later time to see whether changes in these two variables were related to level of problem-solving ability initially reported. One hundred and fifty undergraduate and graduate students completed the same measures of problem-solving ability, life stress and depression used in the previously reported Nezu (1986) study, with an additional measure of problem-solving performance included to add construct validity to the study. The authors once again found that problem-solving ability, as judged by both problem-solving measures, significantly interacted with life stress in predicting level of stress-related depression.

Since problem-solving ability has been found to be positively related to stress level, and has also been found to mediate the relationship between level of stress in a person's life and self-reported level of negative affect, this study predicted that social problem-solving ability would be significantly related to lower self-reported stress level.

Problem-solving Training: Step Three of the Prescriptive Problem-solving Model

Problem-solving training has been advocated as a means of increasing self-management skills and reducing the negative effects of stress (D'Zurilla, 1988; 1990). Much of the applied problem-solving research to date has been based

on the five component prescriptive model utilized for the theoretical conceptualization of social problem-solving in the present study. Although most of the problem-solving training studies that have been conducted have involved all five stages of the model done over a period of weeks, there have been some studies that have shown that training in one stage in one sitting is effective in increasing problem-solving skill (Heppner, Neal & Larson, 1984). The present study proposes that problem-solving training in Step Three of D'Zurilla and Goldfried's (1971) five step prescriptive problem-solving model will be significantly positively associated with performance on a hypothetical social problem-solving task.

Although problem-solving training has generally been used with the goal of remediating problem-solving deficits, Heppner, Neal & Larson (1984) believe that it can be useful with college students as a means of equipping them preventively for the challenges of college life. They feel that problem-solving training can provide a generic set of self-management skills that can enhance college students' coping abilities with regard to personal, career and academic concerns. Indeed, students have reported an increase in problem-solving confidence and feelings of self-control, as well as a decrease in personal problems subsequent to 8 one and a half-hour problem-solving training sessions (Heppner, Baumgardner, Larson & Petty, cited in

Heppner et. al., 1984).

In addition to the training programs that have included all five of D'Zurilla and Goldfried's (1971) problem-solving stages, there have been studies that have found significant differences between groups trained in one step of this model when compared to a control group that did not receive the training (D'Zurilla & Nezu, 1980; Nezu & D'Zurilla, 1979; 1981). One of the hypotheses of the present study is that a treatment group that receives training in step three, generating alternatives, will perform significantly better on a social problem-solving task than control groups who do not receive this training.

The principle of generating alternatives was chosen for use in the training component of this study in order to try and improve college students' brainstorming and creative thinking abilities. The level of skill at generating alternatives is also more feasible to objectively quantify and evaluate than the other three principles of problem definition, decision making and solution implementation whose feasibility of training and evaluation was beyond the scope of this study.

The main idea behind step three is that a person's choices for action are increased and the likelihood that a good choice will be made is maximized if the basic principles to produce those choices are followed. The kinds of solutions generated should be limited by only two

criteria: (1) relevancy, which means they must be directly related to the problem, and (2) specificity, which means that they are stated in concrete terms. In following these two criteria, problem-solvers should strive to follow three principles that are believed to maximize creativity and solution production, namely quantity, deferment of judgement and variety. Quantity is encouraged by instructing trainees to brainstorm as much as possible without limiting themselves to solutions that have worked in the past and to not give up if they feel blocked, but perhaps take a break and return to the task later. Deferment of judgement means that solutions are not filtered through any evaluative screen or limited by thoughts of practicality or feasibility at this stage, but rather allowed to be imaginative and original. The variety principle is used to encourage trainees to look over the list of solutions they have generated, to group them by similarity of strategy, to try to increase their choices within each particular strategy, and to try to come up with whole new strategies not previously utilized (D'Zurilla, 1988; 1990; D'Zurilla & Goldfried, 1971; Heppner, 1978).

D'Zurilla and Nezu (1980) conducted a 1 1/2 hour training session with 100 undergraduates randomly assigned to four treatment groups who received problem-solving training in some combination of the three underlying principles of generating alternatives, and a control group

which received no training. The four separate treatment groups were instructed in: (1) deferment, quantity and variety (referred to as "strategy" in that particular study), (2) deferment and quantity, (3) quantity and variety and (4) quantity alone. The no-training control group was simply told to solve the problems, one which was a problem with a university dorm and the other which was a problem with a student needing an "A" in a course. Results showed that the overall performance of the treatment groups was significantly greater than that of the control group. There were no significant differences in performance between groups possibly due to a ceiling effect evidenced by the fact that most students scored fairly high thus decreasing the variance in scores and reducing the validity of the findings (D'Zurilla & Nezu, 1980).

In summary, problem-solving training in the five stage model, as well as in a single stage, of D'Zurilla and Goldfried's (1971) prescriptive problem-solving model has been shown to produce significant differences in performance on a hypothetical social problem-solving task in comparison to control groups who have not received the training. Step three appears to be useful in promoting brainstorming and generation of possible solutions which may be a deficit in highly stressed populations such as beginning college students. The present study investigated whether problem-solving training in step three of the prescriptive model,

generating alternative solutions, would effect a significantly better performance on a hypothetical problem-solving task than no training when administered to groups of college students.

#### Other Factors that May Affect the Outcome of this Study

The major variables of the current study are level of individuation from the family, stress level and social problem-solving ability. Certain personal factors of the individuals who participate in this study could have affected these variables. Family relationship factors and gender-related differences are two such factors. The family relationship factors considered were parental loss due to separation, divorce or death, and level of conflict in the family. Gender was considered in terms of its possible associations with the three major variables of the study, as well as with the results of problem-solving training.

Parental loss as described above could have had an effect on the development of individuation and intimacy. Children who lose their parents through death or divorce may in fact be forced to grow up or individuate sooner than other children (Lopez, 1991; Lopez, Campbell & Watkins, 1988), yet their ability to cope with stressful situations may not have a similar accelerated development. Furthermore, these children's perceived intimacy and capacity for mutual exchange that are typically associated with individuation may be negatively impacted by parental

loss as suggested by Cohen (1992) in a review of the literature on women of divorce. Therefore, it was possible that the positive relationship between individuation and coping ability suggested by the literature may not exist in the sample used in this study; this relationship may have been confounded by parental loss through divorce or death and/or how long ago this loss occurred.

Another family relationship factor that may affect an individual's score on the individuation measure to be used in the current study is family conflict. A possible effect of highly conflictual family relations is a pattern of disengagement, which means that family members are cut off from one another emotionally because the family communication system was too rigid for any kind of change or flexible, shared decision making to occur (Gurman & Kniskern, 1981). A person can develop a feeling of being individualistic, and appear to be well individuated, but in fact have interpersonal relationships that are mostly without intimacy and mutual exchanges that are thought to facilitate individuation from the family. Such interpersonal relationships are not likely conducive to coping with stress. The person in a family with such relationships could score high on an individuation measure and high on a stress measure which is contradictory to the relationship between these variables that the literature would predict. Knowing subjects' level of family conflict

may be significant information in examining the relationships among individuation, stress and problem-solving ability.

There is evidence that there may be gender differences in level of individuation from the family, self reported stress level and problem-solving ability or style. Enright, Lapsley, Drivas and Fehr (1980) found significant gender differences in the development of autonomy, a variable thought to be closely related to individuation, in their large sample of adolescents in seventh and eleventh grade. They found that males were more autonomous than females and that gender was more strongly related to autonomy level than was parenting style, meaning permissive versus democratic. Enright et al. (1980) believed that sex-role socialization differences may have accounted for the differences in the development of autonomous behavior. Hare-Mustin (1978) also remarked about a possible inherent gender bias in the family therapy communication literature that places less value on the more emotional versus rational communication style that women are more likely to show. This type of thinking may have influenced the development of individuation measures so that women tend to score lower on such measures, erroneously portraying them as less individuated. Most of the studies on individuation in the family systems literature have not analyzed the results according to gender (Bray et al., 1987; Harvey & Bray, 1991; Harvey et al., 1991), therefore the

relationship between individuation and gender remains unclear.

Gender differences have been proposed with regard to stressful experiences and coping behavior. Hamilton and Fagot (1988) noted the popular conception that men are commonly viewed to be more instrumental, or action-oriented, in the face of stress, whereas women are believed to use more emotion-focused coping responses such as relaxation or visiting friends. They interviewed 51 female and 39 male first-year undergraduates over an eight-week period to assess any gender differences in frequency of daily stressors, perceptions of stress and utilization of problem-solving behaviors. The only gender difference found, however, was that females reported more daily stressors. In contrast to this, Holahan and Moos's (1986) stratified random sampling of families in the San Francisco area revealed that women tended to use family support while men became more socially withdrawn in the face of stress. Due to conflicting reports such as these, possible gender differences in relation to stress and coping behavior, more specifically social problem-solving behavior, were examined in the present study.

Certain family relationship factors as well as gender issues might have influence the main variables of the study and/or their hypothesized relationships. Some of the family relationship factors of interest to this study included

parental loss due to death, separation or divorce, how long ago this loss occurred, and the perceived level of conflict in the family. Therefore, data was obtained on these factors so that if they, or gender, were found to be significantly associated with the major variables of study, they would be considered in the analyses to test the stated hypotheses.

#### Design of the Study

##### Independent and Dependent Variables for Phase I of the Study

This study was conducted in two phases. Phase I was correlational in design and involved assessing levels of individuation, stress, and social problem-solving ability in order to explore possible associations among these variables. The independent variables in Phase I were: (1) individuation, predicted to be positively associated with social problem-solving ability, and (2) social problem-solving ability, predicted to be negatively associated with self-reported stress level, and to be a mediational variable in the relationship between individuation and stress level. The dependent variable in Phase I was self-reported stress level.

##### Independent and Dependent Variables for Phase II of the Study

Phase II of the study was post-test only in design and examined three levels of a categorical independent variable in the form of three varying conditions. The first condition, the Treatment Condition, occurred in Group I

whose subjects received problem-solving training by a live trainer which included being told the problem-solving principle and given a brief lecture on the usefulness of problem-solving as well as training in Step 3 of D'Zurilla and Goldfried's (1971) problem-solving method. The second condition, the Treatment Control condition, occurred in Group II whose subjects were told the problem-solving principle and given the general lecture on the usefulness of problem-solving as occurred in the Treatment Condition but received no Step 3 training. The third condition, the No-Treatment Control condition, occurred in Group III whose subjects wrote an essay unrelated to problem-solving.

The dependent variables in Phase II was raters' scores for performance on a hypothetical problem-solving task which each group completed subsequent to receiving their respective conditions. Subjects received two scores, one for specificity of their responses and one for the number of alternatives generated as possible solutions to the problem.

#### Summary

Individuation level as defined in the family systems literature to be the degree to which one sees oneself as separate from family members but able to form close emotional bonds with others, has been found to be a significant predictor of physical and psychological well-being. Researchers are becoming more interested in the personal characteristics related to level of individuation

from the family that may account for highly individuated persons' tendencies to be more healthy. Having found significant negative relationships between individuation level and stress level, Bray and his colleagues (Harvey & Bray, 1991; Harvey et al., 1991), now urge a closer examination of possible cognitive or behavioral factors that may explain this relationship. The present study was designed to explore whether a relationship between high individuation and low stress is in fact mediated by a third variable, namely the coping skill of social problem-solving. The study specifically examined the variables of level of individuation from the family, stress and problem-solving skill in beginning college students for whom these variables may be particularly relevant as they deal with life transition issues as well as academic and career decision-making. In the examination of these variables, the influence of gender and certain family relationship variables, namely parental loss due to death, separation or divorce, how long ago this loss occurred and level of family conflict, were also considered.

The present study also attempted to find support for the utility of brief problem-solving training with beginning college students. The third step of D'Zurilla and Goldfreid's (1971) five step social problem-solving model, the step of generating alternatives, was utilized as the brief problem-solving training intervention in this study.

A group that receives specific problem-solving training that includes being told the problem-solving principle and the usefulness of problem-solving as well as training in generating alternatives (the Treatment Group) was compared to two groups, one which was told simply the problem-solving principle and given a lecture on the usefulness of problem-solving (the Treatment Control Group) and another which received no training (the No Treatment Control Group). The effects of social problem-solving training were also analyzed according to the influence of other psychological variables, namely gender, pre-training (i.e. baseline) individuation level, stress level and problem-solving ability.

The present study was expected to provide results that are useful in counseling as well as problem-solving training. Although interpretation of some of the results may be limited due to the correlational nature of the first phase, the study was expected to make useful contributions to the literature that is emerging on the relationships among individuation, health and coping ability.

## CHAPTER III METHODOLOGY

This chapter will present the following information:  
operational definitions of variables in the study,  
hypotheses, subjects, instruments, and procedure.

### Operational Definitions of Variables

Individuation, as defined in this study, is a measure of one's ability to function autonomously and with self-responsibility. Individuation is operationalized by scores on the scales of the Personal Authority in the Family System Questionnaire - Version C (PAFS-QVC) (Williamson, Bray, Harvey & Malone, 1985), which is a modified version of the Personal Authority in the Family System Questionnaire (PAFS-Q) (Harvey, Bray & Malone). The PAFS-QVC (Appendix A) was designed to be appropriate for use with college students. It measures the interactional aspects of individuation in relationships with family members. The seven scales of the PAFS-QVC include Intergenerational Intimacy, Intergenerational Individuation/Fusion, Personal Authority, Peer Intimacy, Peer Individuation/Fusion, Intergenerational Intimidation and Intergenerational Triangulation. For the present study, individuation is operationalized by using subjects' scores on the Intergenerational Individuation/Fusion and Intergenerational Triangulation

scales. The Intergenerational Individuation/Fusion scale was chosen because it showed the highest negative correlations with measures of depression and stress of all seven scales when used with the normalization sample. The Triangulation scale was chosen because of its construct validity evidenced by its high positive correlations with other scales of triangulation and parent-child coalitions relative to the other seven PAFS-QVC scales. Scores on the Triangulation scale appear to be good indicators of individuation level since the constructs of triangulation and parent-child coalition conceptually have a negative relationship to high individuation (Williamson et al., 1985).

Stress is defined in this study as the individual's negative response to situations that seem threatening and unmanageable. Stress is operationalized by scores on the Psychological Distress Inventory (PDI) (Appendix B) which is a life stress inventory designed specifically for college students. The scale consists of four sub-scales that yield scores of Depression, Anxiety, Somatic Discomfort and Stress. Respondents are instructed to rate how aversive they imagine each of a list of events to be and to then indicate whether they have experienced the event or not. The sub-scale score is the total of the aversiveness ratings for items actually experienced (Lustman et al., 1984). For the present study, the dependent variable of stress will be

operationalized using the score on the Stress subscale of the PDI.

Problem-solving ability in the present study refers to one's self-perceived problem-solving ability as reported on the Problem-Solving Inventory (PSI) (Heppner & Peterson, 1982). The PSI (Appendix C) was based on stage theories of problem-solving, such as D'Zurilla & Goldfried's (1971) five stage problem-solving model, and yields one overall score of self-perceived problem-solving ability. It was designed to provide information on how people would describe their own ability to solve real-life problems. According to Heppner and Petersen, low scores on the PSI indicate typical behaviors and attitudes associated with successful problem-solving.

Individuation, stress and problem-solving were the variables of interest in Phase I of this study; examination of the relationships among these variables was the major research focus. In Phase II, the independent variables were three problem-solving training conditions: (1) a specific problem-solving training procedure which Treatment Group subjects (TG) experienced; (2) a non-specific problem-solving training procedure which Treatment Control Group subjects (TCG) experienced; and (3) a no problem-solving training condition which the No-Treatment Control Group (NTCG) subjects experienced. The problem-solving training conditions which each group experienced are described in

greater detail in the Procedure section. The relative effects of these training conditions on an individual's social problem-solving skill--the dependent variable of interest in Phase II of this study--was investigated.

Social problem-solving skill was measured by two separate scores: (1) number of alternative solutions that are generated by each subject when presented with the problem-solving task, and (2) overall specificity of the alternatives generated. Number of alternatives generated was chosen as a criterion because D'Zurilla and Goldfried's (1971) problem-solving model states that the more solutions generated for a given problem, the greater is the likelihood that an effective solution will be among them. Specificity was chosen because the model states that specificity is particularly important in order to conduct an accurate evaluation of solution alternatives when it comes to the decision making stage of problem-solving. Thus the specific problem-solving training in the present study will focus on both increasing subjects' skill at producing a large number of possible alternative solutions and on making these solutions as specific as possible so as to improve the potential utility of each solution generated.

In order to obtain social problem-solving skill data (the dependent variable of Phase II of the study) subjects completed a Social Problem-Solving Task Form (SPST) (Appendix D) which consisted of a set of instructions, a

sample problem with possible solutions, and four hypothetical problem situations deemed typical among college students (D'Zurilla, 1993). Number of alternatives (a measure of social problem-solving skill) was simply the total number of suggested alternative solutions generated by a subject in response to all four hypothetical problem situations. Overall specificity (a measure of social problem-solving skill) was a grand mean rating for the mean specificity of solutions generated by a subject for each of the four problems. The mean specificity rating for each solution generated was determined by ratings given by three raters, (two undergraduate research assistants and the principal investigator), who were trained to recognize specificity in answers to social problems. The specific details of the procedure for training raters are provided later in the "Procedure" section.

#### Hypotheses and Research Questions

This study tested the following hypotheses:

- (1) level of individuation has a significant positive relationship with social problem-solving ability;
- (2) social problem-solving ability has a significant negative relationship with stress level;
- (3) the relationship between individuation and stress level differs significantly according to social problem-solving ability, and
- (4) from a pool of subjects who score one-half a standard

deviation below the mean on a social problem-solving ability scale, a treatment group who are provided with problem-solving training would perform significantly better on step 3 (generating alternative solutions) of D'Zurilla and Goldfried's (1971) five-step problem-solving approach than a treatment control group and no-treatment control group.

The possible effects of gender and certain family relationship factors on the major variables of study were addressed in the following research question:

- (1) Are baseline levels (i.e. pre-problem-solving training) levels of individuation, stress level and/or problem-solving ability (the main variables of study in this research) significantly related to gender and/or to the following family relationship variables: (a) parental loss due to divorce, separation or death, (b) time of such parental loss; and/or (c) conflict level in the family?

The possible mediating effects of levels of individuation, stress level and social problem-solving ability at baseline (Phase I of the study) on the effects of problem-solving training (Phase II of the study) were addressed in the following research question:

- (2) Do baseline (i.e. pre-problem-solving training) levels of individuation, stress or social problem-solving ability predict performance of step 3 (generating

alternative solutions) of D'Zurilla and Goldfried's (1971) problem-solving method after receiving problem-solving training?

The possible mediating effects of gender on the effects of the problem-solving training in Phase II of the study were addressed in the following research question:

- (3) Do the effects of problem-solving training in step 3 (generating alternative solutions) of D'Zurilla and Goldfried's (1971) problem-solving method differ significantly according to gender?

#### Subjects

Participants in the current study were 261 undergraduate psychology students recruited from six different psychology classes at the University of Florida. Participants from the Introductory Psychology course were solicited via the subject pool sign up procedure which offered one and a half hour's course credit in exchange for participating in the study. All other participants were solicited from the other psychology classes via a class announcement, either from the principal investigator or from the instructor, that included a brief description of the study and how much extra credit would be given in exchange for their participation for the study. Some instructors did not offer any extra credit. Of the total sample, 246 students participated in the study in order to receive course credit and 15 students participated without

receiving credit.

All participants took part in Phase I and Phase II of the study which were conducted on the same day. Phase I consisted of completing measures of individuation, stress, social problem-solving ability and a brief demographic questionnaire. Immediately upon completion of Phase I, participants were assigned to one of the three experimental groups, each of whom experienced a different problem-solving training condition in Phase II. Group assignment was made using a stratified sampling procedure, to match the groups as closely as possible on gender and social problem-solving ability which was assessed in Phase I. Although all 261 participants completed the procedure for Phase II, only the data from those participants who scored in the lowest third on the Problem-Solving Inventory (PSI) ( $n = 88$ ) were used in the data analyses planned for Phase II data. This low-scoring group was utilized in the data analyses in an attempt to preclude a possible ceiling effect had the data of subjects with high problem-solving ability been included.

The demographic characteristics of the students who participated in the study (both Phases I and II) are shown in Table 3.1. The total group was comprised of 161 females (61.7%) and 100 males (38.3%). The sample ranged in age from 17 to 36, with 95.4% of the sample ( $n = 249$ ) being 24 years old or below. Sixty-two students (23.8%) were freshmen, 32 (12.3%) were sophomores, 68 (26.2%) were

juniors, and 91 (35%) were seniors. Because the Demographic Questionnaire (DQ) only contained the choices of Freshman, Sophomore, Junior or Senior for the item "Year in School", students who did not fit into any of these categories wrote in either "Graduate Student" or "Not Applicable". Since some of those who wrote in "Not Applicable" may in fact have also been graduate students, for the purpose of reporting the results all students who wrote in anything other than one of the four forced choices were put into one category called "Graduate/Other in Table 3.1. Seven (2.7%) students indicated either graduate student or other on the Demographic Questionnaire (DQ).

Although all Phase I participants also went through Phase II of the study, only the data from those participants who scored in the approximate lowest third on the PSI were included in the analyses that involved Phase II data. All participants including research assistants were blind during data collection as to whether or not their data would be included in the analyses. The demographics from the sub-sample of participants whose Phase II data was analyzed are presented in Table 3.2.

#### Instruments for Phase I of the Study

Instruments used in Phase I of the study included the Personal Authority in the Family System Questionnaire - Version C (PAFS-QVC) (Williamson et al., 1984), the Psychological Distress Inventory (PDI) (Lustman, Sowa, &

Table 3.1

Frequencies and Percents for Gender, Age, and Year in School  
of Participants in Phase I and Phase II

	Frequency	Percent
<u>Gender</u>		
Female	161	61.7
Male	100	38.3
<u>Age</u>		
17 - 20	160	61.3
21 - 24	89	34.1
25 - 28	6	2.3
29 - 36	6	2.3
<u>Year</u>		
Freshmen	62	23.8
Sophomores	32	12.3
Juniors	68	26.2
Seniors	91	35.0
Graduate/Other	7	2.7

Table 3.2

Frequencies and Percents for Gender, Age, and Year in School  
of Participants Whose Phase II Data were Included in the  
Analyses for the Study

	Frequency	Percent
<hr/>		
<u>Gender</u>		
Female	55	62.5
Male	33	37.5
<hr/>		
<u>Age</u>		
17 - 20	60	68.2
21 - 24	25	28.4
25 - 28	2	2.3
29 - 36	1	1.1
<hr/>		
<u>Year</u>		
Freshmen	32	36.4
Sophomores	15	17.0
Juniors	22	25.0
Seniors	19	21.6
Graduate/Other	0	0

O'Hara, 1984), the Problem-Solving Inventory (PSI) (Heppner & Peterson, 1982) and a Demographic Questionnaire (DO) (Appendix E).

The PAFS-OVC is an 84-item self-report paper and pencil instrument designed to measure interactional patterns in the two-generational family system. It consists of seven scales that are conceptually related to the construct of individuation, one of the independent variables in the present study. The scales of the PAFS-OVC are: (1) Peer Fusion/Individuation, which measures the ability to have autonomous and self-determined relationships characterized by taking responsibility for the self and not being controlled or impaired by an intimate peer. Fusion is the opposite pole of individuation and denotes relationships characterized by emotional reactivity and being overly responsible for the other person; (2) Intergenerational Fusion/Individuation, which measures the degree to which a person operates in a fused or individuated manner with parents; (3) Peer Intimacy, which is defined as voluntary closeness with distinct boundaries to the self and measures satisfaction, trust and self-disclosure in intimate relationships; (4) Intergenerational Intimacy, which measures intimacy with parents, and is defined similarly to peer intimacy but excludes issues related to romantic and sexual intimacy; (5) Intergenerational Triangulation, which measures the degree to which parents overly involve their

children in marital and family conflicts using inappropriate coalitions, with greater triangulation reflecting greater fusion; (6) Intergenerational Intimidation, which measures an individual's need to follow and live up to parental expectations; and (7) Personal Authority, which measures the ability to have a peer-like relationship with one's parent, showing intimacy simultaneously with individuation. Scales 1 through 5 and 7 are positively related to individuation level and scale 6 is negatively related to individuation level.

The present study utilized scale 2, Intergenerational Fusion/Individuation, and scale 5, Intergenerational Triangulation. Scores on both scales 2 and 5 are positive indicators of individuation; i.e., although the concept of triangulation is negatively related to individuation, the scale items are written so that high scores indicate less triangulation. Scale 2 showed the highest negative correlations with measures of depression (men = -.35, women = -.27) and stress (men = -.46, women = -.32) of all seven scales when used with the normalization sample. This is consistent with the predictions of Bray and his colleagues (Bray et al., 1984; Williamson, 1982) about the relationship between individuation and psychological adjustment, and thus provides support for using this scale in the present study. Scale 2 showed good test-retest reliability (.75) (Williamson et al., 1985), the second highest of all seven

scales. The Intergenerational Fusion/Individuation Scale shall henceforth be referred to as Individuation (ITGN).

Scale 5, Intergenerational Triangulation, showed high negative correlations with other scales that are indicators of triangulation (men = -.49, women = -.45) and parent-child coalitions (men = -.49, women = -.45) relative to the other seven PAFS-QVC scales, thus providing construct validity for this scale. Scores on the Triangulation scale appear to be good indicators of individuation level since the constructs of triangulation and parent-child coalition are conceptually negatively related to high individuation. Scale 2 also showed good reliability with a test-retest correlation score of .66. Both scale 2 and scale 5 were also shown to reliably discriminate between clinical and non-clinical samples of college students (Williamson et al., 1985). The Intergenerational Triangulation Scale shall henceforth be referred to as Triangulation (TR).

Items on the PAFS-QVC are scored on a 5-point Likert scale and ask about the respondent's current relationships with parent. Subjects with deceased parents are asked to respond according to how they remembered their relationships to be. An example of an item from the Individuation Scale is "I am usually able to disagree with my parents without losing my temper." An example of an item from the Triangulation Scale is "It feels like I cannot get emotionally close to my mother without moving

away from my father."

The Psychological Distress Inventory (PDI) was designed to measure student stress level. It is a 56-item self-report scale that requires respondents to rate on a 5-point Likert scale how aversive they imagine a particular event would be for them and then to go back over the list to indicate which events they have actually experienced. Items were derived primarily from multiple regressions of four criterion measures: the Beck Depression Inventory (BDI), the State-Trait Anxiety Inventory (STAI), the Cornell Medical Index (CMI), and the Life Stress Questionnaire (LSQ); several original items written to reflect the developmental tasks confronting college students were also added. The final version of the PDI included four scales: Depression, Anxiety, Somatic Discomfort and Stress. Significant correlations have been shown among the scales of the PDI and the four criterion measures from which the scale was derived, but of course should be interpreted cautiously due to inflation of the correlations because of item overlap. The Stress scale, which was used in the present study, showed a significant test-retest reliability coefficient of .80 and a significant interitem reliability coefficient of .64 in the norm sample. A final score for each subject was derived by summing the ratings of aversiveness for only the items which subjects reported having experienced.

The Problem-Solving Inventory (PSI) is a 35-item self-report scale, using a 6-point Likert format, that assesses general self-perceived problem-solving ability. The items were written as face valid measures of a person's utilization of the five problem-solving stages of the D'Zurilla and Goldfried (1971) model. Low scores typically reflect the kinds of behaviors and attitudes associated with successful problem-solving. Reliability estimates showed the PSI to be internally consistent, with alpha coefficients ranging from .72 to .90, and stable over a two-week period, with test-retest coefficients of .83 to .89. Construct validity was demonstrated by the PSI's significant correlations to other scales of self-perceived problem solving ability and internal versus external locus of control (Heppner & Petersen, 1982). Several studies have reported the validity of the PSI (Heppner et al., 1982; Heppner et al., 1983).

The Demographic Questionnaire (DQ) (Appendix E) was designed to elicit personal information about subjects that may be relevant to the analysis and results of the study. The DQ asked questions about gender, age, year in school, whether parental loss has occurred due to separation, divorce or death, and time of occurrence of this loss. The DQ also included two questions scored on a 7 point Likert-type scale in order for subjects to indicate their perceived level of conflict in their family. These items read: (1)

Please rate the level of conflict you believe existed in your home when you were living there on the scale below, and (2) Please rate the level of support that you felt that you received from your parents when growing up.

Instruments for Phase II of the Study

The instruments for Phase II of the study were two questionnaires used as manipulation checks for the Treatment Group and the Treatment Control Group (see Appendices F and G respectively), the Social Problem-Solving Task Form (SPST) (Appendix D) and the Specificity Rating Form (SRF) (Appendix H).

Prior to completing the SPST, each Treatment Group subject (but not each No-Treatment Control Group subject) completed a 5-item manipulation check questionnaire related to the specific points covered in her/his problem-solving training group. This questionnaire assessed retention of the information covered in each problem-solving training condition. The manipulation check questionnaires for the Treatment Group (Appendix F) and for the Treatment Control Group (Appendix G) differed only as necessary to reflect the different contents of their training.

The Social Problem-Solving Task Form (SPST) was designed to test participants' ability to apply the information learned in one of the problem-solving training conditions in this study, or as in the case of the No Treatment Control Group, to test participants' ability to

apply social problem-solving principles to hypothetical situations without exposure to one of the problem-solving training conditions in this study. The SPST included instructions on how to complete the form, an example problem with a list of solutions, and four hypothetical problem situations with a blank space underneath each problem where participants were instructed to list as many possible solutions as they could generate in response to each problem. Two of the problems were of an academic nature and two of the problems were of a social nature. The sample problem situations used on the SPST were taken from an unpublished study on social problem solving skills in males preparing to enter college (D'Zurilla, 1993).

The Specificity Rating Form (SRF) was used by the principal investigator and two trained research assistants to assign specificity scores to each solution generated in response to each problem by each subject. Subjects did not see the SRF. A final score for total number of solutions was derived by adding the total number of solutions each subject generated for all four problems. A final score for specificity was derived by calculating the mean specificity rating for each subjects' set of solutions to each problem and then calculating one grand mean of overall specificity rating for each subject. Each rater scored all solutions and an overall mean of the grand mean derived by each rater was utilized in the data analysis. The range of specificity

scores was 1 to 5.

### Procedure

#### Data Collection for Phase I

Both Phase I (which occurred during a 8-week period) and Phase II (which occurred during a 8-week period) of the study were conducted in classrooms in the Psychology Building. Instruments for Phase I of the study were administered to large groups of 25 to 41 subjects at a time. A total of 9 large groups were used to collect data, each group on a different day. Phase II data was collected immediately following Phase I data collection on each given day. The composition of subject participants in each group was based on who signed up for each group to be run at specified pre-determined times that were arranged according to a range of students' schedules. The data collection team included the principal investigator, two primary research assistants, and three additional research assistants who only assisted in conducting the stratified sampling procedure used to assign Phase I participants to one of three treatment conditions that he/she would participate in during Phase II of the study. Of the two primary research assistants, one was a European American female psychology major in her senior year, and the other was a European American male psychology major in his senior year. The three additional research assistants were all European American female psychology majors in their junior year.

Upon arrival for the study, participants in each large group were greeted by one of the primary research assistants, asked to sign in, and given Phase I packets which they were asked not to read until instructed to do so. They were then told that they would complete a series of questionnaires for the first part of the study, and would then be assigned to one of three sub-groups for the second part of the study. They were also told that (a) the purpose of the study was to look at some of the characteristics associated with managing stress; (b) while in their assigned sub-group, they would listen to a lecture or complete an essay and then complete another written task related to problem-solving; (c) all written measures which they completed would be kept confidential; (d) this entire research procedure would take approximately one and a half hours; and (e) they could ask one of the research assistants or the principal investigator any questions that they had about either phase of the study upon completing Phase II of the study. Participants were then given the Informed Consent Form (Appendix I), which they signed and turned in immediately.

Next, participants were asked to complete the questionnaires in their packets, namely the PSI, the DQ, the PAFS-OVC, and the PDI. (The data obtained from these assessments would be used in the analyses for Phase I of the study.) All questionnaires in a given packet had a subject

number written in the top right corner. Since each person's PSI score was needed in order to complete the stratified sampling procedure for group assignment in Phase II, participants were asked to complete it first and to raise a hand so it could be collected and scored immediately by one of the five research assistants. Participants were given one half hour to complete all four questionnaires.

#### Stratified Sampling Procedure and Group Assignment for Phase II Data Collection

For Phase II of the study, participants were assigned to either the Treatment Group (TG), the Treatment-Control Group (TCG) or the No-Treatment Control Group (NTCG). While Phase I questionnaires were being completed, the five research assistants were scoring the PSI's in preparation for the stratified sampling procedure which would determine which participants were in which groups. The stratified sampling procedure, i.e. the actual placement of subjects into groups, was conducted by the principal investigator and one of the primary research assistants in order to make the treatment conditions as even as possible on problem-solving ability, gender, and number in group. The steps for the procedure included (1) dividing the scored PSI's into those completed by males and females, (2) rank ordering the male and female groups separately from highest to lowest PSI score, (3) evenly distributing the PSI's into 3 piles with approximately the same number of low, medium and high-scoring participants in each pile, and (4) adding the male

and female groups together to form the three sub-groups. A list of the subject numbers in each sub-group was then made in order to be able to tell each participant her or his group assignment.

When the entire group had completed the Phase I questionnaires, the principal investigator instructed participants to place their questionnaires in the designated covered box and tell the research assistant who was handing out the Phase II packets the subject number which was written on the set of questionnaires they had just turned in. Having placed each participant into a group, the research assistant could then give each person a packet containing the material necessary in order to participate in her or his designated group, and could write the person's subject number on the packet so that Phase I and Phase II data could be matched later on. Each packet also had the room number for where each person should report to complete Phase II. [The entire stratified sampling and group assignment procedure was repeated for each of the nine large groups so that Phase I and Phase II could be completed on the same day for each group.]

Once participants had received a Phase II packet, Groups 2 and 3 (the Treatment Control Group [TCG] and the No Treatment Control Group [NTCG] respectively) were escorted by one of the primary research assistants to the classroom where their Phase II procedure would be conducted. The

Treatment Group remained in the same classroom with the principal investigator who would conduct their procedure. The principal investigator conducted all sessions with the TG and the primary research assistants alternated conducting the sessions with the TCG and the NTCG.

Data Collection for Phase II

Phase II was conducted as a post-test only control group design, with each sub-group participating in a procedure related or unrelated to problem-solving. The Treatment Group (TG) received the specific problem-solving training condition. This condition included a lecture on the utility of D'Zurilla and Goldfried's (1971) problem-solving method, and training focused on Step Three which emphasizes (1) the "generating alternatives" principle and (2) the importance of using the specificity criterion when generating alternatives. The script for this training (Appendix J) was developed from some of D'Zurilla's major writings on the five-step problem-solving model (D'Zurilla 1988; 1990; D'Zurilla & Goldfried, 1971).

Following their training the TG was given 3 minutes to complete a 5-item form which served as a manipulation check for the treatment (see Appendix F), and then they were administered the problem-solving skills post-test in the form of the Social Problem-Solving Task Form (SPST). The SPST instructed them to list as many possible solution alternatives as they could generate to the four hypothetical

social/academic problem situations described on the Form. For each problem on the Form, each respondent listed their possible solutions in the space provided on the form. The respondents were given a total of one half hour in which to complete the manipulation check questionnaire and to respond to all four problems.

The Treatment Control Group (TCG), which experienced the non-specific problem-solving training condition, was given a lecture on the principles and the usefulness of the problem-solving model that was similar to that given to the TG. However the TCG did not receive the actual training in how to do step 3 (i.e. generating alternative solutions) of D'Zurilla and Goldfried's (1971) problem-solving method (see Appendix K); only the TG received this training. After their training, the TCG was given 3 minutes to complete a 5-item manipulation check form (see Appendix G), and were then administered the same Social Problem-Solving Task Form post-test that the TG completed. The TCG had the same half hour time limitation to complete these Forms as the TG did.

The No-Treatment Control Group (NTCG), which experienced the no problem-solving training condition, was simply instructed to write an essay (See Appendix L) for the same length of time allotted to the TG and the TCG took for their training. The essay task for this group involved providing participants with a list of social issues from which they could choose one to write about; alternatively

participants were given the option of writing about a self-selected topic. In either case, participants were asked to discuss whether they thought the topic they selected was important or not and to explain their response. The NTCG was also given the same Social Problem-Solving Task Form given to the TG and TCG with the same half hour limitation to complete this Form. Phase II lasted approximately 1 hour for each group--a half hour intervention or non-intervention period plus a half hour post-test period.

Once participants arrived to the classroom to which they were assigned for Phase II of the study, they were told what would take place in their particular group for the first half hour [i.e. that they would listen to a short lecture on problem-solving (Treatment Group and Treatment Control Group) or they would be asked to write a short personal opinion essay (No Treatment Control Group)]. Participants were also told that for the second half hour, they would be asked to complete a brief written task, and that upon completing this task, they should return their forms (i.e. the Social Problem-Solving Task Form and the manipulation check [TG and the TCG only]) to the envelope in which they were received. Participants were asked to wait until the research assistant or the principal investigator, depending upon who conducted their group, asked them to turn in their packet. Participants were then reminded that they could ask the principal investigator or a research assistant

any questions they might have after completing this phase of the study.

Once these instructions were given, each group began their procedure. All three groups on a particular day were run at the same time in three different classrooms. Once all forms were collected from a group, the group leaders answered any questions group members had, then thanked all participants and dismissed them.

A total of 261 participants completed Phases I and II; for Phase II, 93 participants (35.9%) were in the Treatment Group, 88 participants (34.0%) were in the Treatment-Control Group, and 78 participants (30.1%) were in the No-Treatment Control Group.

Procedure for Training Raters to Score Specificity of Problem Solutions

The two primary research assistants were trained by the principal investigator to score the problem solutions generated by subjects on the Social Problem-solving Task Form (SPTF) (Appendix D) and to complete the Specificity Rating Form (SRF) (Appendix H). This training used cognitive behavioral modeling techniques involving studying specificity criteria, discussing and elaborating upon these criteria, and practicing the assignment of specificity ratings to sample alternative solutions. Sample solutions for training raters were obtained from administration of the Social Problem-Solving Task Form (SPST) to a small group of students who were not participants in Phase I or Phase II of

this study.

Specificity as used in this study is defined as, "free from ambiguity, and restricted by nature to a particular individual, situation, relation, or effect" (Woolf, 1973). The criteria utilized in the present study to define specificity and train raters was adapted from those utilized in another study which sought to facilitate generation of specific alternative responses in Step 3 of the 12-step Alcoholics Anonymous program (Dunn, 1993).

Given D'Zurilla's (1988) emphasis on the importance of specificity of problem solutions when making a decision, the main idea for deriving a specificity rating for solutions in this study was the indication of a readiness to act, or the ease with which the solution could be implemented without any further planning. Raters were instructed to place a major emphasis on how detail-oriented a solution was because this seemed to indicate that the subject had attempted to be specific by narrowing down the proposed actions. A sample problem and scoring criteria for specificity of solutions are as follows:

Sample problem: It is three-quarters of the way through the semester and your professor with whom you are earning research credits tells you that you have not put in enough hours to get a "Satisfactory" grade in the course. You need this course to graduate.

- 5 - High Specificity: A reference to a particular action that states details such as time, place, persons and/or objects involved in achieving the goal of the solution (e.g. respond to your

professor that you will give him/her a schedule of times, days, and tasks to fulfil the required number of hours before you leave his/her office)

- 4 - (a) clearly falls into neither category 5 nor category 3 or (b) is good enough to be a 5 but leaves out at least one detail (e.g. give her a schedule of times and days when you will be available to make up the hours)
- 3 - Medium Specificity: A reference to a general action oriented toward the goal with only one or two specific details (e.g. promise to do a certain number of hours per week to make up the lost hours)
- 2 - states an action that shows intent toward the goal without a specific plan (e.g. promise to do whatever you have to make up the hours)
- 1 - Low Specificity: states a general action that may or may not address the specific goal and shows no specific plan (e.g. try to convince her that you deserve the credit)

These criteria were discussed with the two undergraduate raters and used by these raters and the principal investigator to practice rating sample problems. The training procedure took approximately 12 hours in total, during which time approximately 250 sample solutions were scored by all three raters. Once the principal investigator felt that a reasonable rate of agreement had been reached, the final third of responses rated was analyzed for inter-rater reliability; a Cronbach's Alpha of .87 was obtained for the ratings. For the actual data, there was no indication on the Social Problem-Solving Task Form (SPST) as to which sub-group participants belonged; therefore, all raters were blind as to experimental group to which each participant had been assigned.

## CHAPTER IV RESULTS

The hypotheses and research questions of interest in this study and the results of the analyses to test/examine these hypotheses and questions will be discussed in this chapter. Research Question 1 will be discussed first because it asked whether or not there are significant relationships among certain independent and dependent variables; such relationships would necessitate the addition of covariates to some of the other planned analyses. The second section is a discussion of the results from analyses to test the four main hypotheses in this study and to examine this study's two remaining research questions. Additional analyses found to be relevant to the study are discussed in the third and final section.

### Results from Research Question 1

Research Question 1 asked whether individuation level [Intergenerational Individuation (ITGN) and Triangulation (TR)], stress level and/or baseline problem-solving ability are significantly related to gender and/or the following family relationship variables: (a) parental loss due to divorce, separation or death; (b) age at time of such parental loss; (c) conflict level in the family; and/or (d) level of parental support. This research question was

considered important because if any of the main variables of the study, namely individuation, stress level, and problem-solving ability, were found to be related to gender or any of these specified family relationship variables, the planned analyses to test the hypothesized relationships among the main variables would have to be modified to reflect the possible influence of gender or any of these family relationship variables on the results of an analysis.

A multivariate analysis of covariance (MANCOVA) was conducted to examine Research Question 1 with the independent variables in the model being gender, parental loss, conflict and support level, and the dependent variables being individuation level (ITGN and TR), stress level, and baseline problem-solving ability. Although age at time of loss was also an independent variable of interest, it could not be included in this analysis because doing so would cause a missing value problem since only subjects who had lost a parent would have an appropriate response to this question. Age at time of loss was instead included in a correlation matrix that included all the independent and dependent variables specified for the MANCOVA.

Results from the MANCOVA showed no significant effect for gender ( $F(4,229) = 1.58, p < .18$ ) and no significant effect for parental loss ( $F(4,229) = 1.86, p < .12$ ). Significant overall effects were found for conflict level in

the family ( $F(4,229) = 14.96, p < .0001$ ) and for support level in the family ( $F(4,229) = 22.20, p < .0001$ ). Follow-up analyses to investigate the homogeneity of the conflict and support slopes showed that these slopes were not homogeneous and thus did not accurately reflect the relationship between conflict or support and the specified dependent variables. Thus, overall results from the MANCOVA indicated that gender, parental loss, conflict, and support should not be included in the remainder of the planned analyses to test the 4 hypotheses of the study and research questions 2 and 3.

Results from the correlation analysis showed no significant relationship between age at time of parental loss and intergenerational individuation ( $r = -.03, p < .81$ ), triangulation ( $r = .07, p < .57$ ), stress ( $r = -.11, p < .36$ ) or baseline problem-solving ability ( $r = .03, p < .78$ ). Time of parental loss was thus not included in the analyses to test the 4 hypotheses and research questions 2 and 3 of the study.

Table 4.1 shows the means and standard deviations for the current sample and the norm groups, if available, for the main variables of the study. The mean ITGN score for this sample was 31.36 (S.D. = 6.05), which is .35 S.D above the mean for the norm sample (29.53, S.D. = 5.25). The mean TR score for this sample was 30.29 (S.D. = 5.75), which is .28 S.D. above the mean for the norm sample (27.05, S.D. =

Table 4.1

Sample and Norm Mean Scores and Standard Deviations on Measures of Individuation (ITGN and TR), Stress (STRESS) and Problem-Solving Ability (PSA)

	Sample				Norm	
	N	Mean	SD	Range	Mean	SD
ITGN	261	31.36	6.06	11-40	29.53	5.25
TR	261	30.29	5.75	4-40	27.05	11.70
STRESS	258	29.47	16.89	2-93	na	na
PSA	261	81.34	19.32	38-130	84.68	19.32

Notes:	ITGN	Intergenerational Individuation Scale of the <u>Personal Authority in the Family System Questionnaire - Version C (PAFS-QVC)</u> (Note: High scores on this scale indicate a higher level of intergenerational individuation.)
	TR	Triangulation Scale of the <u>PAFS-QVC</u> (Note: High scores on this scale indicate a lack of triangulation.)
	STRESS	Stress Scale of the <u>Psychological Distress Inventory (PDI)</u>
	PSA	<u>Problem-Solving Inventory</u> (Note: Lower scores on this scale indicate higher problem-solving ability.)
	na	unavailable data

11.7). The mean PSA score for this sample was 81.34 (S.D. = 19.32) which is .16 S.D. below the mean for the norm sample (84.68, S.D. = 20.65). These comparisons indicate that scores on the individuation and problem-solving ability

measures of subjects in the current study do not differ significantly from the scores of subjects utilized in the norm samples for these measures. The mean stress score for the current sample was 29.47 (S.D. = 16.90). Norm scores for the stress measure used in this study are not yet available.

Results from the Analyses to Test the Four Hypotheses of the Study and Research Questions 2 and 3

This study sought to test four hypotheses and two other research questions in addition to Research Question 1.

Hypothesis I proposed that level of individuation would be significantly positively related to social problem-solving ability. A correlation matrix using the two individuation scales, Intergenerational Individuation (ITGN) and Triangulation (TR), and baseline problem-solving ability (PSA) was performed to test Hypothesis I. Results revealed a significant negative correlation between ITGN and PSA scores ( $r = -.29$ ,  $p \leq .0001$ ). Since higher PSA scores indicate lower problem-solving ability, this negative correlation indicates a positive relationship between individuation and baseline problem-solving ability.

Results also revealed a significant negative correlation between TR and PSA ( $r = -.15$ ,  $p \leq .01$ ). As stated previously, high scores on the TR scale indicate a lack of triangulation, or high individuation; therefore, this negative correlation also shows a positive relationship between individuation and baseline problem-solving ability.

These low correlations provided marginal support for the hypothesis that individuation level is positively related to problem-solving ability.

Hypothesis 2 proposed that social problem-solving ability would be significantly negatively related to stress level. Stress scores were also included in the correlation matrix used to test hypothesis 1. Results showed a low but significant positive correlation ( $r = .17$ ,  $p \leq .005$ ) between stress and PSI scores (both taken at baseline), thus indicating a negative relationship between stress and baseline problem-solving ability and providing marginal support for Hypothesis 2. The correlation matrix performed to test Hypotheses 1 and 2 is presented in Table 4.2.

Hypothesis 3 proposed that the relationship between individuation and stress level would differ significantly according to social problem-solving ability, and that problem-solving ability could therefore be described as a mediator of the relationship between individuation and stress. A pair of hierarchical multiple regression analyses were used to test Hypothesis 3 in order to examine whether problem-solving ability would account for significantly more of the variance in the relationship between individuation and stress. Intergenerational Individuation (ITGN) was entered as the first predictor variable in one regression model and problem-solving ability (PSA) was entered as the second predictor variable in the same regression. The

Table 4.2

Pearson Correlation Coefficients Among Measures of Individuation (ITGN and TR), Stress (STRESS) and Problem-Solving Ability (PSA)

	ITGN	TR	STRESS	PSA
ITGN	1.00	0.49***	-0.26***	-0.29***
TR	0.49***	1.00	-0.17**	-0.15*
STRESS	-0.26***	-0.17**	1.00	0.17**
PSA	-0.29***	-0.15*	0.17**	1.00

\*p < .05, \*\*p < .01, \*\*\*p < .0001

Note: Low PSA Scores indicate better problem-solving ability. Therefore, (1) negative relationships between PSA and ITGN and TR denote positive relationships between problem-solving ability and individuation, and (2) a positive relationship between PSA and STRESS denotes a negative relationship between problem-solving ability and stress level.

criterion variable in the regression was stress. The adjusted R-square with ITGN only was .08 whereas the adjusted R-square with ITGN and PSA was .09, showing that adding PSA to the model only accounted for .10% more of the variance in the relationship between ITGN and stress. It was concluded that problem-solving ability did not account for a significantly greater amount of the relationship between individuation and stress and thus Hypothesis 3 was not supported.

In the second regression model, stress was once again

the criterion variable. Triangulation (TR) was entered as the first predictor variable and then PSA was entered as the second predictor variable. The adjusted R-square with TR only was .03 whereas the adjusted R-square with TR and PSA was .06, so that adding PSA to the model only accounted for .17% more of the variance in the relationship between ITGN and stress. Problem-solving ability did not account for a significantly greater amount of the relationship between individuation, as measured by the TR scale, and stress.

Thus Hypothesis 3 was not supported.

Hypothesis 4 stated that from a pool of subjects who scored one-half a standard deviation below the mean on a social problem-solving ability scale, a treatment group provided with problem-solving training would perform significantly better on step 3 (generating alternative solutions) of D'Zurilla and Goldfried's (1971) five-step problem-solving approach than a treatment control group and a no-treatment control group. It was predicted that this group of low scoring problem-solvers would differ in their performance on a problem-solving outcome measure according to whether they had experienced a specific problem-solving training condition (Treatment Group), a non-specific problem-solving training condition (Treatment-Control Group), or a simple written task unrelated to problem-solving (No-Treatment Control Group).

A multivariate analysis of variance (MANOVA) was used

to test Hypothesis 4. The independent variables in the model were experimental group, gender, and the group x gender interaction term (see discussion below on research question 3 which pertains to gender); the dependent variables were overall specificity and number of solutions generated on the problem-solving task, which are the two measures of problem-solving skill used in the present study. The overall model showed no significant group effect ( $F(4,166) = .73$ ,  $p \leq .57$ ), thus Hypothesis 4 was not supported.

Research Question 2 asked whether baseline (i.e. pre-problem-solving training) individuation, stress or problem-solving ability predict performance of step 3 of D'Zurilla and Goldfried's (1971) problem-solving method after receiving problem-solving training. The two measures of performance of Step 3 in this study are specificity of alternative problem-solutions generated and number of alternative problem solutions generated. Two multiple regression analyses were used to test this research question. The predictor variables in the first multiple regression analysis were individuation level (ITGN and TR), stress level, and problem-solving ability at baseline (PSA). The criterion variable was overall specificity of post-training alternative problem solutions generated. None of the independent variables were found to be significantly related to specificity of alternative problem solutions

generated ( $\chi^2 = -.03$ ,  $p \leq .85$ ). Results from this analysis are shown in Table 4.3.

Table 4.3

Summary of Multiple Regression Analysis of Baseline Individuation (ITGN and TR), Stress and Problem-Solving Ability (PSA) as Predictors of Post-Training Problem-Solving Performance (Specificity)

Source	Adjusted		df	R <sup>2</sup>	R <sup>2</sup>	F	p-value
Model	0.165	0.04	6	.02	-.03	0.34	0.85
Error	10.377	0.12	83				
<hr/>							
Predictor Variables		t		p-value			
<hr/>							
ITGN		.42		.67			
TR		.29		.76			
STRESS		.36		.72			
PSA		.91		.36			
<hr/>							

In the second multiple regression designed to address Research Question 2, once again the independent variables were individuation level (ITGN and TR), stress level, and problem-solving ability at baseline (PSA). The dependent variable was number of post-training alternative problem solutions generated. Individuation level as reported both on the Triangulation (TR) and Intergenerational Individuation (ITGN) scales were found to be significant predictors of number of alternative solutions generated ( $\chi^2$

= .08,  $p \leq .026$ ). In other words, the degree to which a person's relationship with a parent allows the development of individuation in the person is predictive of the amount of solutions that person will generate when problem-solving.

Table 4.4 shows the results from this analysis.

Table 4.4

Summary of Multiple Regression Analysis of Baseline Individuation (ITGN and TR), Stress (STRESS), Problem-Solving Ability (PSA) as Predictors of Post-Training Problem-Solving Performance (Number of Solutions)

Source	Adjusted SS	MS	df	R <sup>2</sup>	R <sup>2</sup>	F	p-value
Model	307	77	4	.12	.08	2.91	.0260
Error	2238	26	85				
<hr/>							
Predictor Variables			t	p-value			
<hr/>							
ITGN			-2.17		.03		
TR			2.65		.01		
STRESS			-1.48		.14		
PSA			-0.913		.36		
<hr/>							

Research question 3 asked whether the effects of problem-solving training in step 3 (generating alternative solutions) of D'Zurilla and Goldfried's (1971) problem-solving method would differ significantly according to gender. The same MANOVA used to test Hypothesis 4 was used to test Research Question 3. The overall model showed no

significant gender effect ( $F(2,83) = 1.98$ ,  $p \leq .14$ ), thus Research Question 3 was not supported. Descriptive data on specificity scores and number of solutions generated is shown in Table 4.5.

Table 4.5

Descriptive Data on Specificity Scores and Number of Solutions Generated by Group and by Gender

	Overall Specificity		Number of Solutions		SD
	N	Mean	SD	Mean	
<b>Group</b>					
TG	31	2.79	.37	18.6	5.38
TCG	32	2.71	.34	19.0	4.81
NTCG	27	2.66	.32	19.0	6.07
<b>Gender</b>					
Male	34	2.66	.32	18.6	5.74
Female	56	2.76	.37	19.0	5.14

- Notes: (1)      TG           Treatment Group  
                   TCG          Treatment Control Group  
                   NTCG        No Treatment Control Group
- (2)      Range of specificity scores is 1 - 5, with 1 = low specificity and 5 = high specificity.

Additional Analyses of Interest to the Study

A manipulation check was conducted with subjects in the Treatment and Treatment-Control Groups in order to assess

whether subjects retained the information presented in their respective training sessions. The manipulation check questionnaires each consisted of five questions that addressed the content of the material presented during the problem-solving training sessions; the content of the questionnaires for the two groups differed in order to reflect the difference in the content of their respective training sessions. In the event that no significant differences were found between the treatment groups in Phase II on the problem-solving measures, scores on the manipulation check might help explain the lack of group differences by giving a measure of how well subjects did or did not learn the information presented during training.

An examination of the means and standard deviations of the manipulation check scores for the Treatment Group (4.61, S.D. = .61) and the Treatment-Control Group (4.31, S.D. = 1.02) showed that on a whole subjects scored high on this 5-point questionnaire. This suggests that subjects did in fact retain the information presented in their training sessions.

Linear regressions were used to examine the relationship between manipulation check scores and problem-solving performance as measured by number of alternative solutions and specificity of solutions. The results from this analysis would be useful in determining the effectiveness of the training as measured by actual problem-

solving performance. The first regression, with the predictor variable being manipulation scores and the criterion variable being specificity of solutions generated, showed no significant relationship between the two variables ( $r^2 = .0017$ ,  $p \leq .75$ ). The second regression, with the predictor variable once again being manipulation scores and the criterion variable being number of alternative solutions generated, also showed no significant relationship between the two variables ( $r^2 = .0001$ ,  $p \leq .99$ ). This lack of relationship between scores on the manipulation check and performance on the problem-solving outcome measure suggests that even though subjects may have learned the material presented, training was not necessarily effective in producing a change in problem-solving skill. Results of these regression analyses are shown in Tables 4.6 and 4.7.

In order to examine whether the two outcome variables for problem-solving performance were related to each other, Pearson correlation coefficients were computed for the relationship between specificity scores and number of solutions generated. Interestingly, a significant negative correlation ( $r = -.42$ ,  $p < .0001$ ) was found between the two variables, thus implying that the greater the number of solutions generated, the less specific the solutions were likely to be. These results bring into question not only the utility of including these two types of measures in combination as measures of outcome on a problem-solving

Table 4.6

Regression Analysis of Score on Manipulation Check Questionnaire (MANIP) as a Predictor of Problem-Solving Performance (Specificity of Solutions)

Source	SS	MS	df	R <sup>2</sup>	F	p-value
Model	186	186	1	.0017	0.10	.7490
Error	109934	1802	61			
<hr/>						
Predictor Variable			t	p-value		
MANIP			.32	.7490		

Table 4.7

Regression Analysis of Score on Manipulation Check Questionnaire (MANIP) as a Predictor of Problem-Solving Performance (Number of Alternative Solutions Generated)

Source	SS	MS	df	R <sup>2</sup>	F	p-value
Model	.0023	.0023	1	.000001	0.00	.9925
Error	1586.3	26.00	61			
<hr/>						
Predictor Variable			t	p-value		
MANIP			-0.01	.9925		

task, but also questions the theoretical soundness of including quantity as well as specificity in the same problem-solving model.

## CHAPTER V DISCUSSION

This chapter will present a summary of the results, interpretations of these results, some limitations of the study, suggestions for further research, and general conclusions from the present research.

### Summary of Results

The present study was designed for two major purposes. First, the relationships among individuation (a family process variable), stress level, and problem-solving ability were examined, with the prediction that problem-solving ability would be a significant mediator of the relationship between individuation and stress level. Second, the effectiveness of problem-solving training in step 3 (generating alternatives) of D'Zurilla and Goldfried's (1971) five-stage problem-solving model was tested, with the prediction that training in specific techniques addressed in step 3 would result in better performance on a hypothetical problem-solving task than would a non-specific problem-solving training procedure or no training.

Statistical analyses were performed to test four hypotheses related to the above stated major purposes of this study. Hypothesis 1 proposed that there would be a significant positive correlation between individuation level

and problem-solving ability, and Hypothesis 2 proposed a significant negative correlation between problem-solving ability and stress level. Hypothesis 3 proposed that the relationship between individuation and stress would differ significantly according to problem-solving ability.

Significant but low positive correlations were found between the two individuation scales and problem-solving ability and significant negative correlations were found between problem-solving ability and stress. These low correlations provided marginal support for both hypotheses 1 and 2. Results showed that problem-solving ability did not account for a significantly greater amount of the relationship between individuation and stress, thus hypothesis 3 was not supported.

Hypothesis 4 addressed the relative effectiveness of problem-solving training in a specific problem-solving technique [step three of D'Zurilla and Goldfried's (1971) problem-solving method which is generating alternative solutions] versus a non-specific problem-solving training procedure and a non-problem-solving training exercise. It was proposed that a treatment group who received training in "generating alternative solutions" (D'Zurilla & Goldfried, 1971) would perform significantly better on two problem-solving performance measures than a treatment-control group who simply received a general lecture on problem-solving and a control group who wrote an essay unrelated to problem-

solving during the training time. Problem-solving performance was assessed by subjects' responses to a problem-solving exercise consisting of hypothetical problems deemed typical to college students. The two outcome measures for problem-solving performance were number of alternative solutions generated and overall specificity of solutions as rated by two research assistants and the principal investigator. The importance of problem-solving, an overview of the steps for problem-solving, how to brainstorm for as many solutions as possible, and how to make solutions as specific as possible constituted the training for the Treatment Group. The Treatment-Control Group simply received a lecture on the importance of problem-solving and an overview of the steps for problem-solving; brainstorming was mentioned but not elaborated on and taught as was done in the Treatment Group. The No-Treatment Control Group simply wrote a personal opinion essay which served as an exercise during the training phase that was unrelated to problem-solving. No significant differences in group performance were found following training in either of the problem-solving training outcome measures. Hypothesis 4 was therefore not supported.

Three research questions related to the variables in the preceding hypotheses were also examined. Research question 1 asked whether there were differences in individuation, stress or problem-solving ability at baseline

(the major variables of the study) associated with gender, loss of a parent, age at time of parental loss, family conflict level or family support level (the secondary family relationship variables). This research question was utilized in order to assess whether to include gender or any of the secondary family relationship variables in the analyses addressing the hypotheses that included the major variables of the study. Only family conflict level and family support level were found to be significantly associated with individuation level, stress level, and problem-solving ability at baseline. The slopes for these associations were found to be non-homogeneous, however, thus precluding their inclusion in the analyses to test the four hypotheses of the study and research questions 2 and 3.

Research question 2 asked whether individuation, stress, or problem-solving ability at pre-training would predict problem-solving performance at post-training. Individuation measures [Intergenerational Individuation (ITGN) and Triangulation (TR) scales] were found to be significant predictors of number of solutions generated, which was one of the outcome measures for problem-solving performance at post-training.

Research question 3 asked whether problem-solving performance differed according to gender. No significant differences in problem-solving performance in association with gender were observed.

A manipulation check was administered to the Treatment and Treatment-Control Groups to assess whether subjects retained the information included in the training and lecture. Both the Treatment Group (mean = 4.61) and the Treatment Control Group (mean = 4.31) made high scores on the manipulation check tests for which 5 was a perfect score; thus it appears that the subjects did indeed retain the information given to them in their training sessions. No significant relationship was found between scores on the manipulation check and problem-solving outcome.

Finally, a significant negative correlation was found between the two outcome measures for post-training problem-solving performance, namely overall specificity and number of solutions generated. This finding indicates that the higher the overall specificity rating an individual received, the fewer the number of solutions the individual was likely to generate.

#### Interpretation of the Results

Finding a significant positive association between individuation, as defined in the family systems literature, and problem-solving ability suggests that more highly individuated persons and good problem-solvers may share some of the same characteristics. Since some of the characteristics associated with individuation include a sense of responsibility for one's well-being and a lack of over-involvement of others in one's own personal problems

(Bray et al., 1987; Harvey & Bray, 1991; Williamson & Bray, 1988), a positive relationship between this construct and problem-solving ability is not surprising. It may be that parents who allow their children to achieve optimal levels of individuation also promote a sense of responsibility, self-confidence and optimism in their children that leads to their adeptness at problem-solving.

The significant negative relationship found between problem-solving ability and stress was also not surprising. Social problem-solving ability has often been described as a coping mechanism (D'Zurilla, 1988; 1990; Folkman & Lazarus, 1988; Heppner, Neal & Larson, 1984; Nezu, 1985); therefore, individuals who are good problem-solvers may have better stress management skills and thus manifest lower stress scores.

Although the relationships between individuation and problem-solving ability (ITGN:  $r = -.29$ ,  $p < .0001$ , TR:  $r = -.15$ ,  $p < .05$ ) were fairly low, as was the relationship between problem-solving ability and stress ( $r = .17$ ,  $p < .01$ ), these results provide some support for the impetus to look at problem-solving ability as a mediator of the relationship between individuation and stress. (Note: Lower Problem-Solving Inventory (PSI) scores indicate higher problem-solving ability, so negative correlations with PSI [problem-solving ability] scores indicate a positive relationship and positive correlations indicate a negative

relationship with problem-solving ability). The correlations reported above suggest that self-described good problem-solvers are both highly individuated and show lower stress levels than poor problem-solvers.

Finding that problem-solving ability did not account for a significantly greater portion of the relationship between individuation and stress indicates a lack of support for the hypothesis that problem-solving ability is a mediator in the relationship between individuation and stress. Problem-solving ability was chosen as a possible mediating variable in this study because Harvey and Bray (1991) and Harvey et al. (1991) have suggested that there may be some personal characteristics or coping styles that allow highly individuated persons to take a more proactive, health-inducing approach to managing stress. The finding that problem-solving ability was not a significant mediator as hypothesized may be due to failure of the measures of problem-solving and stress to adequately assess these variables. The Psychological Distress Inventory (PDI) used to measure stress in this study is a retrospective measure that asks respondents to indicate whether they have experienced a certain event and to rate how stressful it was for them on a 1 to 5 scale (Lustman, Sowa and O'Hara, 1984). A more relevant stress measure for the current study may have been one that involved a problem-solving task during a stressful situation since one of the purposes of the study

is to explore how highly individuated persons handle stress. The results from an in vivo assessment of stress may have provided a better indication of how highly individuated persons react under stress rather than relying on how people recall their stress level to have been at other times in their lives.

Finding no significant differences in problem-solving performance by the three experimental groups at post problem-solving training may be explained by some aspects of the training conditions. First, the script for the Treatment Group (TG) was written to be a variation on the script for the Treatment-Control Group (TCG). Although all four points of D'Zurilla and Goldfried's (1971) problem-solving model were mentioned in the training for the TG, most of the time was spent elaborating on how to use the principles of generating many alternative solutions and specificity of solutions to improve problem-solving performance. The training for the TCG also presented all four points but did not elaborate on any of them and instead talked more about the general utility of all aspects of D'Zurilla and Goldfried's (1971) problem-solving model. In order to make the training more different, the script for the TG could have been written to spend more time on the generating solutions and specificity principles and less time focused on other aspects of the model which were not targeted to be outcome measures for this study.

Second, the control group was given a task that was designed to be unrelated to problem-solving, but may instead have served as a problem-solving task in itself. Participants were asked to write about a social issue that they thought was either important or unimportant and to describe what they thought of it and why they thought so. The task was designed in such a way that anyone would have been able to complete it; thus its simplicity should have made it benign in its effect on problem-solving performance. A perusal of some of the essays, however, showed that people generally wrote somewhat fervent descriptions of what they thought should be done about an issue even though they were not asked to do so. Approaching the task in this manner may have gotten them somewhat into a problem-solving mode that actually facilitated their performance on the problem-solving outcome measure.

Using number of alternative solutions generated rather than effectiveness of solution as an outcome variable may have been another weakness in the design of the current study. Other studies have found significant group differences in problem-solving performance between treatment groups which have been trained in the generating alternatives principle and control groups who did not receive this training when effectiveness of solutions, rather than number of solutions, was the outcome variable (D'Zurilla & Nezu, 1980; Nezu & D'Zurilla, 1981). In a

study designed to test the effectiveness of the quantity principle, which advocates generating many alternatives when solving problems, D'Zurilla and Nezu (1980) conducted a one and a half hour training session in using the quantity principle with 100 undergraduate students. Students were subsequently required to brainstorm possible alternative solutions to two hypothetical social problems. The outcome variable for the study was effectiveness of solution as judged by two Ph.D. clinical psychologists who were blind to the experimental design. Results showed that students who received training in the quantity principle generated more effective solutions than control group students who received no training and were simply told to solve the problems.

Although solutions were judged to be more effective in the experimental group in the previously cited study, the study fails to mention whether there was any relationship between number of solutions generated and effectiveness of solution. Using number of alternative solutions generated as the outcome variable for problem-solving skill, as in the current study, pre-supposes that generating many solutions is an indication of good problem-solving ability. D'Zurilla and Goldfried (1971) do suggest that more brainstorming in problem-solving (i.e. use of the quantity principle) leads to better problem-solving skill, but it may in fact be the case that persons who produce fewer solutions come up with higher quality solutions. It is possible that if the

outcome variable for the present study had been effectiveness of solution rather than merely quantity of solutions, significant group effects may have been found. Future studies should be designed to examine the relationship between number of alternative solutions generated to solve a problem and effectiveness of such solutions after undergoing training in the quantity principle. Such studies would enable researchers to decide how to measure problem-solving success with regard to using the quantity principle.

An examination of the mean scores for specificity for each group did show that the treatment group scored higher than the treatment-control group who in turn scored higher than the control group. This finding suggests that problem-solving training in D'Zurilla and Goldfried's (1971) problem-solving model with and without emphasis on specific principles when generating alternatives holds potential for improving problem-solving performance in the area of generating specific alternative problem solutions.

Individuation, stress and problem-solving ability at baseline were not shown to be significant predictors of post-training problem-solving performance as measured by specificity of responses. Individuation level does not appear to be a significant indicator of problem-solving performance as measured by specificity of responses to hypothetical problems. The lack of relationship between

stress and specificity of solutions generated in this study may have been due to some weakness in the stress measure used in this study. If the study had been designed to use an in vivo or more current measure of stress, rather than the retrospective measure of general life stress used in this study, a significant relationship may have been found between stress and specificity of solutions. Finding no relationship between problem-solving ability, as measured by the Problem-Solving Inventory (PSI), and specificity of solutions generated was not surprising since Heppner and Petersen (1982) caution that results from the PSI may not necessarily predict skill at solving hypothetical problems.

Neither stress nor baseline problem-solving ability were found to significantly predict problem-solving performance as measured by number of solutions generated. This suggests that neither general stress level nor problem-solving ability at baseline were factors relevant to number of problem solutions generated subsequent to problem-solving training.

Finding Intergenerational Individuation (ITGN) scores to be a significant predictor of problem-solving performance as measured by number of solutions generated was somewhat surprising because the relationship was negative. High scores on the ITGN scale indicate that the individual feels separate and distinct from the parents, and perhaps capable of fairly autonomous decision-making processes. It was

assumed that a higher number of solutions generated would be associated with better problem-solving performance and thus would be positively associated with individuation level. If high individuation is predictive of better problem-solving performance, the negative relationship between individuation level and number of solutions generated may indicate that more highly individuated persons use a more decisive, less time-wasting problem-solving style which helps them to generate solutions that are few but high quality. Indeed, the negative relationship between the two outcome measures for post-test problem-solving performance further brings into question the validity of using number of solutions as a positive indicator of problem-solving performance.

Finding Triangulation (TR) scores to also predict number of solutions generated suggests that the amount of involvement in parental disputes predict one's propensity to generate multiple solutions to a problem. Triangulation refers to a parent's tendency to involve a child in an alliance against the other parent on an issue that may or may not directly involve the child--high scores on the TR scale indicate a lack of triangulation by parents. Lack of triangulation in a family may be a sign of greater parental acceptance of children's behavior in general and thus more acceptance of children's brainstorming and coming up with different solutions with less control from parents.

One surprising outcome of the study was the significant

negative relationship between overall specificity of solutions and number of solutions generated on the post-training problem-solving measure. The principles of specificity and quantity are advocated when training in the "generating alternatives" stage of D'Zurilla and Goldfried's (1971) five-stage problem-solving model which was the basis of Phase II of this study. The quantity principle recommends that you suspend judgement about the goodness of a solution and instead just brainstorm and come up with as long a list of potential solutions as possible. It then appears counter-intuitive that the specificity principle should advocate that each solution generated should also be very detailed and specific to the problem. The findings of the current study question the cohesiveness of the principles behind the "generating alternatives" stage, and suggest that those who spent more time concentrating on specificity of solutions were unlikely to generate a long list of solutions. Problem-solving training sessions which emphasizes both quantity and specificity in generating problem solutions may in fact be utilizing two principles that work against each other in producing high quality solutions.

#### Limitations of the Study

One limitation of the present study may have been the use of only two of the scales on the Personal Authority in the Family System Questionnaire - Version C (PAFS-QVC)

rather than the entire measure or some combination of several of the scales into more meaningful factors. The Intergenerational Individuation (ITGN) scale and the Intergenerational Triangulation (TR) scales were chosen because (a) these have previously been shown to be significantly related to scores on other stress measures (Bray & Harvey, 1987), and (b) using more than two scales would have greatly reduced the power of the statistical analyses used in this study. The more recent studies done by Harvey and his colleagues have utilized statistical programs that allow for a combination of several of the PAFS-OVC scales into meaningful factors. (Harvey & Bray, 1991, Harvey et al., 1991). Although some of the analyses in this study which used two of the PAFS-OVC scales yielded significant results, a combination of the two scales may have produced a more meaningful factor which would have yielded additional significant results.

Another limitation of the study may have been the lack of true differences in training conditions in Phase II as discussed in the previous section. The scripts for the treatment and treatment-control groups may not have differed enough in their content. The Treatment Group's script may not have focused enough on specificity, and presenting it in a lecture format rather than as a discussion did not allow for elaboration and clarification of the principles of the problem-solving model used in the current study. Also, the

control group's essay may in fact have primed them for a problem-solving task so that they could not be considered a true control group.

Another possible weakness in this study was the rating procedure. It is difficult to say whether the criteria used to rate specificity of solutions were truly meaningful in assessing problem-solving performance. It was necessary to keep the rating system as objective as possible so the raters were instructed not to assess how good or poor they thought a solution was during the rating procedure. In an effort to keep the rating system quantifiable, the criteria for specificity became narrowed down to whether the solution was goal-directed or not and how many details it included. Consequently, poor solutions could receive a high rating if they contained a lot of details, and this may have resulted in poor problem-solvers receiving high specificity ratings.

As previously mentioned, using number of solutions as an outcome measure may not have provided an accurate assessment of problem-solving performance. Those scoring the solutions often noted that the longest lists of solution alternatives seemed to contain solutions that were not thoughtful and perhaps reflected the actions of a person who had not taken the task very seriously. The significant negative correlation between specificity of solution and number of solutions generated suggests that trying to write more solutions leads to less specific solutions which may in

turn mean less effective solutions. The significant findings in the problem-solving training study by D'Zurilla and Nezu (1980) suggest that using ratings of effectiveness of solutions may be a more useful outcome measure for such studies.

#### Suggestions for Future Research

Although the major hypothesis of problem-solving as a mediator of the relationship between individuation and stress level was not supported, there was minimal support for the hypothesized relationships between individuation and problem-solving ability and between problem-solving ability and stress. There may be some other variable that is related to individuation and stress and has some type of problem-solving component to it, such as coping skills, that would prove to be a significant mediator. Future research should continue to focus on identifying the characteristics of highly individuated persons that help explain their lowered stress levels. Studies designed to assess problem-solving skill while subjects are under a stressful situation may provide information on the problem-solving abilities utilized in coping with stressful events and how this coping process relates to individuation level.

Future studies on D'Zurilla and Goldfried's (1971) third step (generating alternatives) of the five step problem-solving model is indicated by the results of this study. The significant negative relationship found between

the measures of two of the main principles of step three, namely quantity and specificity of solutions, challenge the utility of including them both in the third step. Further empirical research should be conducted to test the relationship between these two concepts in order to assess if one may in fact be more useful for problem-solving training than the other and if one may be more strongly associated with effective solutions than the other.

Further studies done on problem-solving training should perhaps utilize a discussion format. Subjects should be able to ask for more information on the concepts being presented in order for the training to become more meaningful to them. This would also give the experimenter an idea of what does or does not make sense to the participants in the training procedure and whether the presentation actually has strong potential for achieving it's goal of improving problem-solving performance.

A general observation on research on family communication concepts was also made in light of the findings of the current study. Since communication among family members is affected by so many different factors and in turn affects many other aspects of people's lives, it is difficult to capture the complexity of a concept such as individuation from the family in any one research study. Although some of the major hypotheses of the study were not supported, the significant findings with regard to the

relationships between individuation and stress and problem-solving suggest that studies on individuation may provide important information about how family development can impact individual development and behavior. It may be that the studies conducted using the Personal Authority in the Family System Questionnaire - Version C (PAFS-QVC) are most useful when the entire measure is used or when certain scales are used in combination with others. More research should be conducted with the PAFS-QVC which are complex enough to capture the concepts it purports to measure but also provides useful, practical information that would make the study of individuation less esoteric.

#### Conclusions

The present study sought to explore the relationships among the family systems variable of individuation, life stress and problem-solving ability. Healthy individuation, defined as the ability to make close connections with others while keeping distinct and appropriate interpersonal boundaries, has previously been shown to be related to lower levels of felt stress (Harvey et al., 1991). Since effective problem-solvers seem to show similar characteristics to highly individuated persons, the study proposed that level of problem-solving ability might be a variable that intervenes in the relationship between individuation and stress.

Results of the study showed significant but small

correlations between high individuation and low stress, and also between high individuation and high problem-solving skills. However, the major hypothesis of an interaction between individuation and problem-solving ability in relation to stress was not supported. This non-significant finding may have been due to the inappropriateness in the stress measure used--the Psychological Distress Inventory (PDI). The PDI which is a retrospective measure of life stress rather than a current measure of stress, which may have been more appropriate for this study. The Personal Authority in the Family System - Version C (PAFS-QVC) also appears to be a complex instrument which may not lend itself as well to studies utilizing only two of its scales as it does to studies using it in its entirety.

The effectiveness of brief problem-solving training was also investigated in this study. Specifically, the effectiveness of problem-solving training in the third step of D'Zurilla and Goldfried's (1971) problem-solving model, generating alternative solutions, was evaluated using comparison groups who received specific problem-solving training, a general problem-solving lecture and a non-training exercise. Problem-solving training for the Treatment Group, i.e. the specific problem-solving training, was unique in emphasizing the importance of generating a large quantity of solutions as well as specific solutions as recommended by the "generating alternatives" step of the

D'Zurilla and Goldfried (1971) problem-solving model. The Treatment Control Group received a general problem-solving lecture, and the No Treatment Control Group were assigned a non-problem-solving exercise during the time that the other two groups were receiving their training.

No differences in the performance of the Treatment Group, Treatment Control Group and the No-Treatment Control Group were observed at post-problem-solving training as measured by two outcome measures used to assess problem-solving performance. It is concluded that problem-solving training utilizing D'Zurilla and Goldfried's (1971) "generating alternatives" principle had been ineffective in producing significant differences in problem-solving performance among the three groups.

Relationships between the measures completed at baseline, namely the individuation, stress and problem-solving ability measures, and the problem-solving performance measure were also examined. Problem-solving performance as measured by quantity of solutions generated was found to be negatively related to scores on the Intergenerational Individuation (ITGN) scale, one of the measures of individuation in this study. This surprising finding suggests that being more individuated from parents may lead to the development of a more decisive problem-solving style with less of a tendency to generate many possible solutions to a problem. In contrast, scores on the

Triangulation scale, the other measure of individuation used in this study, were positively related to number of solutions generated. Since high scores on Triangulation indicate low triangulation or healthy individuation, individuation was shown to be positively related to problem-solving performance. This suggests that lower involvement in parental disputes leads to a greater propensity to brainstorm and generate many solutions to a problem. Together, these findings may be said to indicate that level of closeness with a parent may be related to the number of solutions an individual tends to generate in a social problem-solving situation.

One unexpected finding was the negative relationship between number of solutions generated and the average specificity of solutions generated by each subject. This finding suggests that the problem-solving principle which incorporated these two concepts may be counter-productive in that they actually work against each other.

Suggestions for future research on the relationships between individuation, stress and problem-solving include examining an in vivo stressful situation and assessing how a person performs a problem-solving task and how this problem-solving performance may be related to individuation level. The fine points of D'Zurilla and Goldfried's (1971) problem-solving model should also be further empirically tested in order to determine the utility of including and/or

emphasizing the use of both the quantity and specificity principles in problem-solving training models.

APPENDIX A  
PERSONAL AUTHORITY IN THE FAMILY SYSTEM QUESTIONNAIRE -  
VERSION C (INTERGENERATIONAL INDIVIDUATION AND  
TRIANGULATION SCALES)

(See Bray and Harvey, [1987])

APPENDIX B  
PSYCHOLOGICAL DISTRESS INVENTORY - STRESS SCALE

DIRECTIONS:

A. For each item listed below, circle how aversive or stressful the event would be to you, according to the following scale:

1. Not at all aversive or stressful
2. Slightly aversive or stressful
3. Moderately aversive or stressful
4. Very aversive or stressful
5. Extremely aversive or stressful

B. Put a check mark on the line to the right of the choices if you have actually experienced this event.

1. Failing a course	1	2	3	4	5	_____
2. Frequent argument with girl/ boyfriend	1	2	3	4	5	_____
3. Death of girlfriend/boyfriend	1	2	3	4	5	_____
4. Death of a parent	1	2	3	4	5	_____
5. Break up with boyfriend or girlfriend	1	2	3	4	5	_____
6. Being the victim of a violent crime	1	2	3	4	5	_____
7. Financial difficulties	1	2	3	4	5	_____
8. Engagement broken	1	2	3	4	5	_____
9. Partner's sexual infidelity	1	2	3	4	5	_____
10. Emotional illness in family	1	2	3	4	5	_____
11. Persistent tension and fears about grades	1	2	3	4	5	_____
12. Failure to graduate as expected	1	2	3	4	5	_____

13. Feeling rejected by someone	1	2	3	4	5	_____
14. Having my honesty or good intentions questioned	1	2	3	4	5	_____
15. Being dissatisfied with my mate/spouse	1	2	3	4	5	_____
16. Realizing that someone I love and I are growing apart	1	2	3	4	5	_____
17. Knowing there's no possibility for growth in my job	1	2	3	4	5	_____
18. Lack of safe working conditions	1	2	3	4	5	_____
19. Forced to act in way contrary to values to satisfy organization	1	2	3	4	5	_____
20. Being unprepared for class/tests	1	2	3	4	5	_____

APPENDIX C  
THE PROBLEM-SOLVING INVENTORY

(See Heppner [1984])

APPENDIX D  
SOCIAL PROBLEM-SOLVING TASK FORM

Subject # \_\_\_\_\_

The purpose of this exercise is to determine how you are likely to respond to some of the situations that you may possibly experience during your years at the University of Florida. Your responses will be helpful in suggesting ways of counseling students with similar situations of concern.

Please read each problem situation carefully, try to imagine yourself in that situation, and make a list of the different things you could do to solve that particular problem. Please list as many responses as you can for each problem situation.

Be as honest and frank as possible in your responses. Your responses will be kept strictly confidential; under no circumstances will they be made known to your instructors or any official in or outside the University. Any identifying information that you give us is strictly for research purposes.

Please read the sample problem situation and solutions on the following page. Then wait for your instructions to begin responding to the problem situations on the attached pages.

### Sample Situation and Solutions

It is about a month after the start of classes during your first semester, and several important examinations have been scheduled for the same week. The examination for your most difficult course has been scheduled for late Wednesday afternoon.

You are having breakfast on Wednesday morning, the day of your most difficult exam. You feel that you are inadequately prepared, and your full schedule of classes for Wednesday does not allow time for further studying before the exam.

### Possible Solutions

Problem 1

To avoid possible argument and resentment over the condition of your room, you and your roommate had the foresight to set up a cleaning schedule at the beginning of the semester. Specifically, you agreed to take turns cleaning the room, alternating each week. Although your roommate isn't as neat as you are and also has a very heavy schedule, he/she's kept his/her side of the agreement quite well.

Almost two weeks have gone by and your roommate still hasn't cleaned the room or said anything about it. When you remind your roommate that it's his/her turn to clean, the response is that he/she has been too busy studying. Realizing that you spend just as much time studying as your roommate does, you feel growing resentment about the fact that he/she's broken the agreement and that your room is beginning to look like a pig sty.

Possible solutions

Problem 2

You have been very unhappy with your first semester at the University of Florida and have very few friends in the dorm. You have complained rather angrily quite frequently to your roommate and other people on the hall about being quiet when you are trying to study and, as a result, they have ignored and rejected you most of the time.

It is now one week before the end of the semester and you are thinking that you would somehow like to make a new start next semester, since you are often lonely and depressed without friends.

Possible solutions

Problem 3

You cannot decide on a major area of study and your indecisiveness and lack of direction trouble you. You have tentatively chosen a major, but you find your introductory course in that subject boring, difficult, and unrewarding.

You are sitting in this particular class one morning, when all of a sudden you realize that you have been dozing. You are troubled that even your major subject cannot hold your attention.

Possible solutions

Problem 4

Although most of your classes at the University of Florida are in the afternoon, you have one required course which meets at 8:00 in the morning. Consequently, after the first few weeks of school, you began attending this class less regularly. This was mostly due to the fact that you often study late and then sleep through the class.

It is now about halfway through the semester and you have missed two weeks of the morning class, or six consecutive meetings. You are reluctant to return not only because you will be unfamiliar with the subject matter, but also because you are afraid of the instructor's reaction to your absence.

Possible solutions

APPENDIX E  
DEMOGRAPHIC QUESTIONNAIRE

Please circle your response to the following questions:

1. Year in school:
  - a. Freshman
  - b. Sophomore
  - c. Junior
  - d. Senior
2. Have you lost a biological parent due to separation, divorce or death?
  - a. yes
  - b. no
3. If you circled "yes" to number 3, please indicate which type of loss and your age when the loss occurred. If you circled "no," go on to question 4.
  - a. separation
  - b. divorce
  - c. death

Your age when the loss occurred \_\_\_\_\_  
years

Did the parent with whom you lived remarry?

- a. yes
- b. no

Your age at time of re-marriage \_\_\_\_\_  
years

4. Most of the time when you were living at home, were there other children, related or unrelated to you, living there also?
  - a. yes
  - b. no
5. If you circled "yes" to number 6, indicate how many other children were in the home growing up with you most of the time when you lived there. \_\_\_\_\_
6. Please rate the level of conflict you believe existed in your home when you were living there on the scale

below. A 1 rating indicates the lowest level of conflict and a 7 rating indicates the highest level of conflict.

1      2      3      4      5      6      7

7. Please rate the level of support you felt you received from your parents most of the time when you were living at home on the scale below. A 1 rating indicates the lowest level of support and a 7 rating indicates the highest level of support.

1      2      3      4      5      6      7

10. Your age (years) \_\_\_\_\_

11. Your gender \_\_\_\_\_

APPENDIX F  
THE PROBLEM-SOLVING METHOD - FORM 1

Subject # \_\_\_\_\_

Please circle the letter of the correct response to each of the following questions based on what you have learned from today's training:

1. Social problem-solving includes situations related to:
  - a. individual problems
  - b. interpersonal problems
  - c. relationship problems
  - d. all of the above
2. One goal of problem-solving training is to help you to:
  - a. come up with problem scenarios
  - b. help you forget about your problems
  - c. develop a more confident attitude toward solving your problems
  - d. teach you some coping mechanisms that don't involve problem-solving
3. The problem-solving principle called "generating alternatives" encourages you to:
  - a. think of your problems in alternative ways
  - b. alternate your coping methods
  - c. come up with several possible solutions before choosing which one to act on
  - d. act out all your possible solutions
4. The "quantity" principle states that:
  - a. the more possible solutions you generate, the better your chance of finding one good solution among them
  - b. your solutions should be limited to conventional ideas
  - c. you should not spend too much time coming up with several possible solutions
  - d. all of the above

5. The "specificity" principle states that:
  - a. you should decide on a specific number of solutions
  - b. you should have a specific problem
  - c. your solutions should have specific details of your planned actions
  - d. you should choose your best solution and try it out to see how effective it might be

APPENDIX G  
THE PROBLEM-SOLVING METHOD - FORM 2

Subject # \_\_\_\_\_

Please circle the letter of the correct response to each of the following questions based on what you have learned from today's training:

1. Social problem-solving includes situations related to:
  - a. individual problems
  - b. interpersonal problems
  - c. relationship problems
  - d. all of the above
  
2. One goal of problem-solving training is to help you to:
  - a. come up with problem scenarios
  - b. help you forget about your problems
  - c. develop a positive attitude toward problem-solving
  - d. teach you some coping mechanisms that don't involve problem-solving
  
3. The four steps of the problem-solving formula are:
  - a. problem definition, generation of decisions, decision-making, and solution implementation and verification
  - b. problem definition, generation of alternatives, decision-making, and solution implementation and verification
  - c. problem definition, generation of resources, decision-making, and solution implementation and verification
  - d. problem definition, generation of alternatives, decision-making, and solution regeneration
  
4. The step which involves choosing the most effective solution to try is called:
  - a. problem definition
  - b. generation of alternatives
  - c. decision-making
  - d. solution implementation and verification

5. Solution implementation and verification means:

- a. deciding what the problem is
- b. coming up with several possible solutions
- c. implementing all your possible solutions
- d. choosing your best solution and trying it out to see how effective it might be

APPENDIX H  
SPECIFICITY RATING FORM

Subject Number\_\_\_\_\_

<u>SOLUTION NUMBER</u>	<u>SPECIFICITY RATING</u>			
	<u>Problem 1</u>	<u>Problem 2</u>	<u>Problem 3</u>	<u>Problem 4</u>
1.	_____	_____	_____	_____
2.	_____	_____	_____	_____
3.	_____	_____	_____	_____
4.	_____	_____	_____	_____
5.	_____	_____	_____	_____
6.	_____	_____	_____	_____
7.	_____	_____	_____	_____
8.	_____	_____	_____	_____
9.	_____	_____	_____	_____
10.	_____	_____	_____	_____
11.	_____	_____	_____	_____
12.	_____	_____	_____	_____
13.	_____	_____	_____	_____
14.	_____	_____	_____	_____
TOTAL	_____	_____	_____	_____
MEAN	_____	_____	_____	_____
GRAND MEAN (OVERALL SPECIFICITY SCORE)	_____	_____	_____	_____

## APPENDIX I INFORMED CONSENT FORM

You are being asked to volunteer as a participant in a research study. This form is designed to inform you about the study and to answer any questions you may have. The purpose of this study is to examine some of the personal characteristics that are associated with stress management ability and social problem solving style.

This study will consist of two phases. In Phase I, participants will be asked to complete several questionnaires soliciting information about how people see themselves and their family relationships. These questionnaires will take about one half hour to complete. Participants will then be sent to one of three rooms to complete Phase II. At this time, participants will be asked to either listen to a short lecture or write a short essay and subsequently complete a written social problem-solving task. Phase II of the study will take about one hour in total. Participants will be asked not to put their names or barcodes on the questionnaires completed in Phase I or Phase II to insure their anonymity. All written items that participants complete shall be dropped at random into a covered box. They will later be read and scored in complete confidentiality by the primary investigator and two anonymous raters who will not know who has completed them.

You will be awarded a total of one and a half hour's course credit for participating in this study. Following the experiment, participants will have a chance to learn more about the nature of the study. Any questions or concerns that participants may have as a result of participating in this study will be addressed.

There are no risks or discomforts anticipated for participants in this study. If you wish to discuss any discomforts you may experience, you may call Ms. Kathryn Fraser, M.S., Principal Investigator, at 392-9436. Please read the statement below and sign the form.

I have been fully informed of the procedure for the above-described study and understand its possible benefits and risks. I also understand that I will receive no compensation other than course credit for participation in

this study I understand that I am free to discontinue my participation in this study at any time. I agree to participate in the procedure and have received a copy of this description.

---

Signature of Participant

Date

---

Signature of Principal Investigator

Date

Kathryn P. Fraser, M.S.  
Graduate Student, Psychology  
392-9436, Box 56 Psychology

APPENDIX J  
PROBLEM-SOLVING TRAINING WITH A MAJOR FOCUS ON STEP 3 -  
(GENERATING ALTERNATIVES)

Many people believe that problem-solving ability contributes to your coping skills and stress management abilities. You may not have thought of problem-solving as being directly related to coping but if you think about how you handle the day to day hassles of life, many times it's a problem-solving process. Sometimes people deal with their problems by using their own coping mechanisms--hot bubble baths, meditation, music, exercising, sports and lots of others. Some problem situations need a more active response, however, like when there's something you need to get or something you need to get rid of because it's causing you some pain. This is when you might benefit from using a social problem-solving process--some kind of step by step formula for how to go about achieving your desired goal.

Social problem-solving has been studied as a way to teach people something about their general approach to handling problem situations. Some examples of social problem-solving situations are personal or individual problems, interpersonal problems, small group problems and also the general broader social problems. Some of the typical problems people encounter as college students are things like how to decide on a major, finding a roommate, getting along with a roommate, social problems like dating, having trouble fitting in socially, adjusting to living away from home for the first time, learning to be a responsible and independent adult, and time management in order to get in the right amounts of studying, work and leisure time.

When you think about what counselors try to do for people who are having personal problems, you probably imagine them trying to teach them how to relax, how to cope and maybe helping them by talking them through their problems and helping them brainstorm on how to get from point A to point B. Another way that counselors have found useful in helping people is by giving them some problem-solving training. The idea is that by changing your way of looking at your problems, and also giving you some specific skills or methods that can serve as a formula for problem-solving, problem-solving training will make you feel better about your capabilities. Instead of trying to help you out problem by problem, you learn to have a general approach to

"generating alternatives" and this is just really another term for brainstorming with some additional special guidelines. "Generating alternatives" is just one part of a four-step problem-solving method that is designed to give you a more structured, methodical way to approach your problems. The generating alternative technique includes two principles that are particularly helpful in the brainstorming process, namely quantity and specificity. Researchers in problem-solving believe that if you follow these two principles or guidelines in coming up with solutions, you have a better chance of finding at least one good solution.

The quantity principle is one that encourages you to spend some time coming up with a number of solutions to choose from. They don't all have to be perfect ideas, but you should find that the more you come up with, the better chance you have of finding one good one among them. Try not to limit your solutions to conventional or ordinary ideas, or ideas that have worked in the past. Remember, at this point you are not yet ready to make a decision about exactly what to do about your problem so don't worry if your solutions seem somewhat outlandish. In the long run, the more possible alternatives you have to choose from is the better your chances of having a good one to choose from on your list.

So now that I've encouraged you to brainstorm, I'd like to give you one limiting principle that I think will make for better solution ideas, namely specificity. Specificity means that you've narrowed down your choice of what to do by giving some specific details of what you plan to do. Things like time, place, people and objects to be used for your solution have already been narrowed down. For instance, if you're going to decide on a studying strategy, one strategy that is not very specific is to say, "well, I'll just look over the class materials." This sounds pretty general, and like it could be one part of a study strategy, but it doesn't sound like you really sat down and thought about the best study strategy you could use. On the other hand, if you devise a study strategy that involves taking three days, devoting one day each for notes, the textbook, and extra handouts, that really outlines your study strategy in a much more specific way. I realize that you all have your own way of studying, and that different things work for different people, but to have some kind of plan at least makes you feel a little more in control of the task and ready to go at it. For some people, their specific plan of studying may be to start six hours before the exam and spend two hours each on the different kinds of material for the test. Even though it's not planned quite as far ahead, this is also a highly specific plan. You will save yourself an extra planning step if your solution has been developed in a way that you have already narrowed down the details like time,

place and people involved. Also, when it comes time to choose which solution you want to use, it will be easier if your solutions are actually something you can see yourself doing.

Here's a sample of what I mean by using specificity in your solutions. [point to example on board, read sample problem]. Solution 1--try to convince her that you deserve the grade--is not very specific at all. It's more like a general action that doesn't seem like you've put much thought into solving the problem. Solution 2--promise to do whatever you have to to make up the hours--is slightly more specific because it shows your intent to take some action, but doesn't show that you have any idea of what action you should take. Solution 3--promise to do a certain number of hours per week to make up the hours--is getting more specific because it shows that your actions address the specific goal of making up hours. This shows your intent and some planning on your part. Solution 4--give the professor a schedule of times and days when you will be available to make up the hours--is even more specific because you are narrowing down the details of how you plan to make up the hours. The solution shows some forethought and certainly shows good intent toward achieving your goal. Solution 5--tell your professor that, before the end of the day, you will give her a schedule of times, days, and tasks to fulfill the required number of hours--is the most specific solution. You've included not only times and days but also what you will do to complete the hours. The solution shows intent as well as planning and would also give you some peace of mind because you've already given yourself an idea of what's a good way to solve this problem.

You can see that the solutions in this example got more and more specific. The greater specificity of the solutions would be beneficial to the problem-solver in this situation because the professor would probably be impressed that the student put some thought into what to do, and it probably helps the student feel more confident because they have a specific plan. Now I'll give you a chance to practice using the method. Remember you're not trying to solve your problem immediately, just taking a step towards solving it by doing some brainstorming. You're simply trying to maximize your options for action. Now, take a few moments to think about some problem or issue possibly related to life at the University, some kind of academic or social situation that you've been struggling with recently. It can be something personal, school-related, or having to do with something coming up in the near future [pause for 30 seconds]. Now go ahead and brainstorm as you may have in the past and see if you can generate three or four things that you could do that seem specific enough to you so that you could act on them quite soon. Take about 3 minutes to do this [pause for 3 minutes]. Now, since this is a

practice exercise, go ahead and look over the solutions you generated and see if they are pretty specific or if you should try to add some other details to make them more specific [pause for 1 minute]. Okay, if you followed the principles of quantity and specificity you should have been able to come up with a couple of good ideas about what to do about your problems. If you didn't have too much success, I think that with practice you can improve your problem-solving skills. Thank you for your participation--I hope this training has been helpful.

APPENDIX K  
PROBLEM-SOLVING TRAINING WITHOUT A MAJOR FOCUS ON STEP 3 -  
(GENERATING ALTERNATIVES)

Many people believe that problem-solving ability contributes to your coping skills and stress management abilities. You may not have thought of problem-solving as being directly related to coping but if you think about how you handle the day to day hassles of life, many times it's a problem-solving process. Sometimes people deal with their problems by using their own coping mechanisms--hot bubble baths, meditation, music, exercising, sports and lots of others. Some problem situations need a more active response, however, because the problem is actually an obstacle that's preventing you from reaching a desired goal. This is when you might benefit from using a social problem-solving process--some kind of step by step formula for how to go about achieving your desired goal.

Social problem-solving has been studied as a way to teach people something about their general approach to handling problem situations. Some examples of social problem-solving situations are personal or individual problems, interpersonal problems, small group problems and also the general broader social problems. Some of the typical problems people encounter as college students are things like how to decide on a major, finding a roommate, getting along with a roommate, social problems like dating, having trouble fitting in socially, adjusting to living away from home for the first time, learning to be a responsible and independent adult, and time management in order to get in the right amounts of studying, work and leisure time.

When you think about what counselors try to do for people who are having personal problems, you probably imagine them trying to teach them how to relax, how to cope and maybe helping them by talking them through their problems and helping them brainstorm on how to get from point A to point B. Another way that counselors have found useful in helping people is by giving them some problem-solving training. The idea is that by changing your way of looking at your problems, and also giving you some specific skills or methods that can serve as a formula for your problem-solving approach, problem-solving training will make you feel better about your capabilities. Instead of trying to help you out problem by problem, you learn to have a general approach to problem-solving that hopefully makes you

feel more organized, more in control and more confident about your ability to deal with everyday problems.

The aspect of problem-solving training that tries to change the way that you look at problems and think about solving problems is called changing your problem orientation. This includes general advice on how to think more positively about your problems and to encourage you to be active, optimistic and persistent in your problem-solving efforts. Problem-solving training also involves four skills or methods which will be the focus of today's training. The four steps of the problem-solving formula are: (1) problem definition, (2) generation of alternatives, (3) decision making and (4) solution implementation and verification. The authors of this particular problem-solving method attempted to outline a problem-solving process that takes into account the different skills that you need in order to have a step by step approach that allows you to clearly think through, consider alternative solutions to problems, and arrive at logical solutions to your problems. Although you don't always have time to be this methodical in your problem-solving, it can be helpful to try to get into this mode of thinking so that it becomes second nature to you. Let me now talk more about the individual skills and methods involved in the 4-step problem-solving approach.

Step 1: Problem definition. As simple as it sounds, many times people don't take the time to specifically define what the problem is. Oftentimes, we are faced with what seems like a potentially disastrous situation and feel the need to rush right in and fix things up. This can lead to rash, faulty decision making. The problem solving model recommends that people take some time to think the situation through and clearly define what the issue is before acting. Although immediate action may relieve some of the immediate anxiety, this can be detrimental in the long run. You may feel better at the thought of having made a move, but if you didn't really address the issue at hand this may end up causing you more distress for having wasted your time. Take time to think about what is the real problem and then attack it.

Step 2: Generation of alternatives. It's important to put some energy into coming up with different possible ways to solve your problems. The first solutions that come to mind are not always the best solutions. It makes sense that the more possible solutions you can generate, the greater is the chance that a good solution will be among them. It is easy to get stuck in a certain mode and resort to a narrow way of thinking about how to solve your problems. This can be detrimental because there may be great variability in your problems such that a few quick solutions are not sufficient to deal with all of them. It's a good idea to aim for a number of different solutions when faced with a problem-solving situation so that you have a "smorgasbord"

or broad array of ideas to choose from.

Step 3: Decision making. The objective in the decision making phase is to evaluate, or judge and compare, the solution alternatives that you have developed and then to select the best solution to implement. The best solution is defined as the one that is expected to be most effective in achieving the problem-solving goal while maximizing benefits and minimizing costs. The consequences of your solution might be something immediate or something long-term, so you have to use your imagination some and hypothesize about your actions. It makes sense to take the time out to go through the thought processes that lead to good decision making because this is when you are getting ready to act.

Step 4: Solution implementation and verification. Solution implementation and verification means that you are going to try out your solution and verify, or check, whether it is effective or not. Once you have gone through the stages of problem definition, generating alternatives and decision making, you can now put your chosen solution to the test. The objective in this fourth stage is to assess whether the solution you chose will be effective in the actual problematic situation. You could say that you have solved the problem symbolically in the preceding phases, but you have not yet applied it to the real-life situation. You should have some criteria or standard by which you can judge the effectiveness of your solution. This criteria may be simple or complex depending on the problem situation. Once you have tried out your solution and seen whether you have accomplished what you needed to accomplish, you can decide whether you were successful or whether you need to go back to an earlier stage and go through the process again. If you have several unsuccessful tries at solving the problem, another possible decision is to seek advice from someone else. Whatever you decide to do, it is important to try out your chosen solution, test for its effectiveness, and proceed from there.

Once again, the two major components of this problem solving model are problem orientation and the four skills method often called the 4-step problem solving formula. Problem orientation refers to your general attitude toward problem solving, including the way you conceptualize your problems and how you feel about your ability to solve them. The four step problem solving formula involves four particular skills: problem definition, generation of alternative solutions, decision making and solution implementation and verification. It is believed that making an effort to include these four steps or skills in your problem solving and decision making processes will maximize the effectiveness of your solutions. The model recommends that you take the time out to put the extra effort into the problem solving process--this may lead to better solutions

in the long run and less wasted time and effort.

## APPENDIX L ESSAY

There have been many major social issues that have been in the forefront over the last five years, e.g. environmentalism, freedom of speech for musicians, adequate funding for education, the United States foreign policy, the abolishment of apartheid, and numerous others. Pick an issue, either from this list or one of your own, and describe how you feel about it. You can choose one that you feel is important or one that you feel is unimportant. If you think it is important, tell what you think should be done about it. If you think it is unimportant, tell why you think so.

Be as honest and frank as possible. Your responses will be reviewed anonymously. There are no right or wrong answers. Please write between one and a half and two pages. You may request extra sheets if you need them. You will have 30 minutes to write this essay.

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Kathryn Patrice Fraser was born in Kingston, Jamaica on August 13, 1964. She has lived in the United States for the past 16 years. Kathryn graduated from Miami Palmetto High School in June 1981. She received her Bachelor of Arts Degree in Psychology with a specialization in special education from the University of Miami in December of 1985.

Kathryn entered the counseling psychology program at the University of Florida in August 1988. She completed her predoctoral internship at the Village for Families and Children, Inc., in Hartford, Connecticut. Her minor is interventions with children, and she plans to work with children and families after completing her graduate program.

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

  
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Carolyn M. Tucker, Chair  
Professor of Psychology

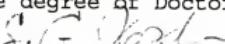
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Martin Heesacker  
Associate Professor of Psychology

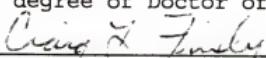
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Robert C. Zillier  
Professor of Psychology

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Sharon G. Kosch  
Professor of Psychology

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This dissertation was submitted to the Graduate Faculty  
of the Department of Psychology in the College of Liberal Arts  
and Sciences and to the Graduate School and was accepted as  
partial fulfillment of the requirements for the degree of  
Doctor of Philosophy.

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Dean, Graduate School